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REVIEWS OF NEW BOOKS.

History of the British Turf, from the Earliest Period to the Present Day. By James Christie Whyte, Esq. 2 vols. 8vo. London, 1840. Colburn.

THE history of the British turf is entertaining as the history of a sport, and important as the history of animal improvement, by which the agricultural labours, the enjoyments, and the wars of the country, have been brought to as high a state of advantage as the employment of horse fit for their various ends could accomplish. Our farms, our roads, and our cavalry regiments, are not yet independent of steam; and a good account of the turf affords us a knowledge of the means by which the several breeds that supply them have reached the perfection at which they are seen throughout the British Isles.

We must, however, leave the serious and business portions of the work to that numerous class whom it most concerns, whilst we merely diversify our columns by a few of the miscellaneous and anecdotical extracts which it affords. To begin with the beginning:—

"The earliest mention of horsemanship on record, we find in the Bible, where, in the 50th chapter of Genesis, verse 9, horsemen are named as forming part of the funeral procession of Jacob; and again, in the 14th chapter of Exodus, verse 9, horsemen are enumerated among the troops with which Pharaoh chased the Israelites on their departure from Egypt. Homer, who is generally supposed to have been contemporary with Joshua, frequently dwells on the beauty of the horses which drew the chariots of his heroes; although it may be remarked, as a singular fact, that he makes but two references to horse-riding in his great poem the 'Iliad,' and but one in the 'Odyssey.' The first in the 'Iliad' (K 513) is where Ulysses and Diomede, having stolen the horses of Rhesus without the chariot, mount and gallop them to the Grecian camp. That in the 'Odyssey' (E 371) is in describing Ulysses after his shipwreck, as bestriding a beam of wood among the waves, in the attitude of a man on horseback:—

Αμφ' ἰνὶ δουρατι βαινε κιλητ' ὡς
Ἱππον ιλαυνων.—*

a passage the exact meaning of which is preserved in none of the published translations. * * * Strabo asserts that the Medes, Persians, and Armenians, were the first that broke in the horse to the saddle; and when we call to mind, that in all probability the fertile plains between the Tigris and Euphrates were the early nursery of this noble animal, this opinion would appear the most correct. * *

"'We will here relate an anecdote of a mare called Aura, the property of one Phidolas, a Corinthian, which threw her jockey in the race, but continued her course as if he had kept his seat, increasing her pace at the sound of the trumpet, which was used as the signal of the coming in; and having been first at the winning goal, presented herself to the judges, as if conscious of having won. The Elians declared her the winner, contrary to the present custom in such cases. These judges, called Hallanodics, regulated all matters at Olympia, exercising a power which would not be relished at the present day; for we find them not only excluding from the games, and imposing fines upon, such as were convicted of fraud, but even inflicting upon them bodily correction.' * * * The earliest mention of race-horses, or as they were called in those days, running-horses, in our national annals, is of those in the ninth century, sent by Stugh, founder of the royal house of Capet, in France, as a present to King Athelstan, whose sister, Ethelswitha, he was soliciting in marriage. In the reign of William the Conqueror, according to Cambrensis, Roger de Bellesme, a follower of the king, and created for his military services Earl of Shrewsbury, imported some stallions from Spain into his estate in Powisland; and we find their produce celebrated afterwards by Drayton the poet. This is the first well-authenticated step we can find towards the improvement of the breed of horses. * * * * * Charles I. 1625.—The first races which were held at Newmarket took place in this reign, in the year 1640, although the round course was not made till 1666; and as a further proof of the rapid progress already made in the improvement of the national breed of horses, we find one Sir Edward Harwood ignorantly complaining of what he calls the scarcity of able horses in the kingdom, there not being so many as 2000 that were equal to a like number of French horses; the cause of which he supposes to be the strong addiction which the nation had to racing and hunting horses, which, for the sake of swiftness, were all of a lighter and weaker mould. We may here remark, as highly probable, that the invention of gunpowder and the general use of fire-arms, which caused heavy armour to be disused, did much towards effecting this change, by bringing lighter and fleeter horses into general demand. Butcher, a writer of this period, informs us, in his 'Survey of Stamford,' that a race was annually run for in that town, for a silver and gilt cup with a cover, of the value of seven or eight pounds, provided by the care of the alderman for the time being, out of the interest of a stock formerly made by the nobility and gentry in the neighbourhood."

These are the earliest traces of horsemanship and horse-racing. From them we pass to an interesting notice of the Arab courser:—

"The pure Arabians are smaller than our race-horses, seldom exceeding fourteen hands two inches in height, and are never known, in tropical countries, to turn roarers or to have curbs. Count Rzeiousky gives the following account of the docility and sagacity of the kohlan, or first class of Arabian breed of horses, translated by an English writer, and which we give as being very curious, although we think it highly exaggerated:—'Above all horses in the world,' writes the Count, 'the kohlan is distinguished for the goodness of his qualities and the beauty of his form. He possesses uncommon mildness of temper; an unalterable faithfulness to his master; a courage and intrepidity, as astonishing as they are innate in his noble breast; an unfailing remembrance of the places where he has been and of the treatment he has received; not to be led, not to be touched, but by his master; in the most dreadful confusion of battle, cool and collected; he never forgets the place he came from, and though mortally wounded, if he can gather up sufficient strength, he carries back his despondent rider to his defeated tribe. His intelligence is wonderful: he knows when he is sold, or even when his master is bargaining to sell him. When the proprietor and purchaser meet for that purpose in the stables, the kohlan soon guesses what is going on, becomes restless, gives from his beautiful eye a side-glance at the interlocutors, scrapes the ground with his foot, and plainly shews his discontent. Neither the buyer nor any one else dares to come near him; but, the bargain being struck, when the vendor, taking the kohlan by the halter, gives him up to the purchaser with a slice of bread and some salt, and turns away, never more to look at him as his own,—an ancient custom of taking leave of a horse, and his recognising a new master,—it is then that this generous and noble animal becomes tractable, mild, and faithful to another; and proves himself immediately attached to him whom his passion, a few minutes before, might have laid at his feet, and trampled under his hoofs.' * * * * The poverty of the Arabs enables them to afford but scanty nourishment to their horses. Besides the dry aromatic herbage they may chance to pick up, the Arabian horse usually has but one or two meals in twenty-four hours. At night it receives a little water, and five or six pounds of barley or beans, and a little straw. In Nedjed the horses are regularly fed on dates, and the fragments of any provisions that may be used by the inhabitants; and some writers have even asserted that flesh, raw as well as boiled, is given them by the wealthy people,—a practice in the prevalence of which we are not inclined to place much faith. Very little water is given, as the Arabs conceive (and justly) that much liquid injures the horse's shape, and affects his wind. The colt is mounted after its second year, when the Arab, on all other occasions so kind to his horse, puts it to a cruelly severe trial. The colt, or filly, is led out to be mounted for the first time; its master springs on its back, and rides at full speed for perhaps fifty miles, over sand and rock of the burning desert, without one moment's respite. He then plunges it into water enough to swim, and if, immediately after this, it will eat as if nothing had happened, its purity of blood and stanchness are considered incontrovertible. Such is the account handed down to us by respectable authorities, who, in their turn, received it from the Arabs themselves; but some allowance should be made for the proneness to exaggerate for which all Eastern nations are remarkable, more especially the Arabians; and, glorying, as they justly do, in the prowess of their beautiful steeds, it is not to be wondered at if they should sometimes enlarge upon it to foreigners."

Many stories of extraordinary performances of horses and riders will be found scattered

* Mr. White is either a very indifferent Greek scholar, or excessively careless in selecting quotations. Being absolutely unable to make anything of *his* Greek, we turned to *Homer* himself, and find the line to be,—

Αμφ' ἰνὶ δούρατι βαίνε, κίλητ' ὡς Ἵππον ἐλαύνων

through these pages; but we must be content with a few references by way of specimen:—

"1786.—On the 4th of December of this year, Mr. Hull's horse, Quibbler, by Minor, dam by Sampson, grandam by Cade, was engaged to run twenty-three miles within one hour, round the flat at Newmarket, for a thousand guineas. He performed the distance in fifty-eight minutes and ten seconds: five to two in his favour at starting. He was rode by a boy about 4st. 7lb., who did not appear in the least fatigued. Considerable sums of money were betted on the event, it being the greatest performance ever done in England, by one horse, before that time. * * * A singular case respecting a man whipping and injuring the race-horse Doricles, whilst running at Ludlow, occurred in the year 1799, at the Salop assizes. Mr. Hemminge was plaintiff, and Chipp defendant. The action was brought against the defendant for maliciously whipping and striking the plaintiff's horse Doricles, while running a race on the Ludlow course, against Mr. Corbett's mare Carnation, whereby the plaintiff lost the chance of winning the 50*l.* plate, for which they were running, and whereby also the plaintiff lost his horse, of the value of 300 guineas. The fact was proved beyond all doubt of the defendant striking the horse several times; but as it was doubtful whether the injury the horse received, which was the breaking of the thigh-bone, was occasioned by, or in consequence of, the defendant's conduct, the jury gave a verdict for the plaintiff, with 15*l.* damages only. The defendant was a publican at Ludlow. The learned judge, Mr. Justice Rooke, reprobated the conduct of the defendant very highly; and said, while horse-racing was continued, such behaviour should be severely punished, and was by no means an action for mere nominal damages, even though the jury should not be satisfied that the horse received the injury which occasioned his death by the defendant's means."

In June 1800, "A naval officer undertook, for a wager, to ride a blind horse round Sheerness race-course, without guiding the reins with his hands; this he performed, to the no small amusement of the spectators, by cutting the reins asunder, and fastening the several parts to his feet in his stirrups."

In a match between Lord Grosvenor's "colt, by Gimcrack, and the Earl of Abingdon's Cardinal York, that Mr. Elwes, the celebrated miser, is said to have lent the former 3000 guineas to make up his stakes. Although the betting was three to one in his favour, he would have been compelled to have allowed his opponent's horse to have 'walked over,' but for the unsolicited liberality of the eccentric miser, who on his return from seeing his lordship win the race, scrambled over the Devil's Dyke, at Newmarket, at the risk of breaking his neck, to avoid paying a turnpike."

The Duke of Grafton "being fox-hunting, near Newmarket, a Quaker, at some distance, upon an adjoining eminence, pulled off his hat, and gave a view holla! The hounds immediately ran to him, and being drawn off the scent, were consequently at fault, which so enraged the duke, that, galloping up to the offender, he asked, in an angry tone,—'Art thou a Quaker?'—'I am, friend,' replied Broadbrim. 'Well, then,' rejoined his grace, 'as you never pull off your hat to a *Christian*, I will thank you in future not to pay that compliment to a *fox*.' * * * Richard Shepherd, a trainer on the northern turf, died at Langton Wold, after a short illness, aged forty-three. His first master was Old Sykes, a very excellent trainer, but an original of the first water; and under his able tuition, he soon shewed promise of that skill in training for which he was afterwards distinguished. Many are the droll stories told of his master, Sykes, but we will content ourselves with one anecdote, which sufficiently shews the character of the man. Being on a sick bed, he wrote a letter to an intimate crony, containing this advice:—'I have done many in my time, Tommy, but never did you; don't be agen Merlin for the Leger.'"

With one or two miscellaneous notices we conclude:—

The Importance of Water.—"The best water for horses is soft, fresh, and pure rain, river, or pond water; and it is absolutely necessary, to preserve health in the stable, that a constant and ample supply should be on the premises. In order to effect this, when well or spring water is the only water to be obtained, it should be put into troughs, having some clay and chalk at the bottom, and softened before use by exposure to the sun and air. Such is the effect a change of water has been known to produce in a horse, that in some instances even the loss of a great race has been, with much show of reason, ascribed to this cause alone; and careful trainers have even gone so far as to carry with a horse, on the eve of an important engagement, a supply of the water he has been accustomed to."

In racing we are told:—

"The use, or rather the abuse, of whip, is to be avoided as much as possible, especially with a timid or a sulky horse; for when a horse is doing his best, blows of the whip will often throw him out of his stride, and with those of the latter description, may occasion the loss of the race, by causing them to 'shut up,' which means, shrink to avoid the blows, to such a degree as materially to interfere with their pace. In most cases where punishment is required, the spur, properly used, is to be preferred, and in more than one instance we could name, the spur has worked wonders with horses which were supposed to have stood no chance in the race."

We must leave the pedigrees, calendars, &c. &c. &c., and all the drier parts, to the curious or interested in such matters, and only hope that our little cento of anecdote may recommend Mr. Whyte's laborious performance.

Flowers of my Spring. Poems. 12mo. pp. 197. 1840. London: Groombridge. Keighley: Aked.

"It is an exceedingly difficult task for the young and inexperienced author to come before the public, and more especially before the critics—those hawks whose eyes are ready to detect every flaw, and whose talons are as ready to pick and mangle as the eyes to see. But far be it from the author of these to crouch beneath the feet of any critic, and supplicate for a miserable lenience; he wishes to be judged by another standard than the compassion of the critic. * * But there are certain characters in this age,—the author does not mean to allude to any sect or party,—from whom he expects direct condemnation. To be judged by their vices which he has lashed, he is careless; yet he would remind them, with all love, that he has not lashed individuals, but the vices which degraded them. * * By the way, the venerable Christopher North, the king of critics in our age, has said somewhere, that all who have struck the lyre are worthy of immortality. Hear that, ye small fry of critics, who try to assume greatness, as the frog in the fable tried to be as huge as the bull which he envied!"

How very kind all this is! Who would not be a critic, and sit, and read, and bore their "hawks' eyes" out in endeavouring to point out those passages that have a little—oh, how little!—merit? Whoever this author may be, he thinks no little of himself. We might say that our "greatness" is grown to its full size, that we belong not to the "small fry of critics;" but who would believe us after this sweeping tirade against the whole tribe (saving Christopher North)? What a sensation will this preface create! there will be no peace in the world until this bold—this mighty author, is discovered! Where can he live? wherever does this second Napoleon reside—this bard, "unknown to few," who has dared to throw down his gauntlet to us all? How the earth must shake wherever he treads! how the people must tremble who look at him! And his poetry?—assuredly it can be nothing less than the thunder of old Homer! Perhaps the following four lines may throw some light on his "whereabout:"—

> "'I ween it was not, for I knew
> What time he dwelt with us, and drew
> From them who told me, that from home
> He at that time away did roam.'"

The last two lines are gems; the ease and freedom of the rhythm flow "like a jaunting-car o'er rough and rugged stones."

We copy the two following lines for the sake of the very original note which illustrates the text:—

> "A luckless wight upon that luckless day,
> With aged mother,* on a luckless May."

On reaching his eighteenth year, he says:—

> "Here am I living 'mid a busy world,
> But little known and far less loved withal,"

which, from the tenor of the preface, we are not at all astonished at.

But here he lets a little secret out, and wishes, in spite of his abuse, to be "known more than *one* fleeting hour:"—

> "Why proud Ambition thus would answer me,
> While haughty fire glanced from his sparkling eye:
> 'Who, who would seek to live a fool like thee,
> Nor hated nor beloved, thus grov'ling die?'
>
> 'Tis this ambition's fire that spoils our life,
> Holding a candle to our dazzled sight,
> Luring to grasp at nothing with all strife,
> A courted nothing, fraudulently bright.
>
> All they once eminent have courted this;
> And, though we rail, we still may feel its power;
> Ay, and to own a secret joyous bliss
> At thoughts of being known more than *one* fleeting hour."

His wish shall be gratified.

The pleasant feelings with which he anticipates returning home, after visiting York, shew that he lives in a very "low neighbourhood:"—

> "Leave I the openness of thy good homes,
> To be insulted by a pigmy crew,
> Which strut and swell, all fill'd with empty wind,
> Whose inmost feelings noble thoughts ne'er knew?"

And now, having paid him back "in his own coin," we will honestly confess that there are glimpses of the "true spirit" in his work, passages of really beautiful poetry,—were there not, after his abuse we would not have wasted a word on his book. Wishing that we may meet him again in a better temper, we conclude with the following extracts, which all our readers will peruse with pleasure:—

> *"The Retired Spot.*
>
> It was a fair and lovely spot,
> A sweet retirement, a celestial grot,
> Far i' the centre of yon aged hill,
> Within the sound of many a tinkling rill;

* "If any one should be curious to know who this 'luckless wight' and his 'luckless mother' were, and what business they had there, they were the author's 'Sublime Self' and his mother, on a pilgrimage from one county into another."

While trees grew round, the guardians of the green,
And lowly bushes grew their stems between,
Wreath'd with sweet woodbine, clad in fairest dress,
Which spread its arms in many a fond caress,
And here and there a moss-grown stone was laid
In ease luxurious 'neath the spreading shade.

There the wild songsters met as in their choir,
That spot in their cathedral which their love
(Their vast cathedral was the forest grove)
Had bid them offer to the sacred lyre
The fairest maid in all the heavens above.
There on the boughs they tuned their cheerful song,
Seated in rows from branch to branch along;
And wildly echoing the shrill notes were borne
In lofty cadence on the summer air:
'Twas heard at night, 'twas heard at morn,
And care's hard burden aye seem'd less to bear."

"*The Village Lane.*

See where the primrose 'neath the prickly thorn
Heaves its sweet head soft blushing to the morn,
Too humble to provoke its neighbour's ire,
Who vents on taller weeds its envious fire.
In feathery pride, see where the yellow palm
Hangs its light head and sheds its fragrant balm.
How noble look these elms, whose spreading boughs
O'erhang the lawn whereon the milch-cow lows,
And the proud peacock swells its glittering train,
Shedding in splendour the sun's beams again.
And farther down the winding path appears
The village church tower, hoary in its years,
With scatter'd graves around, and tree of solemn yew,
Mourning above the earth from which it grew.
Here is no pride of heart, no chilling care,
No swelling pomp that snuffs the vital air;
But each lays quiet in his mossy rest."

MACKAY'S THAMES AND ITS TRIBUTARIES.

[Concluding notice.]

For the present we quit the Thames, to give a little to the Medway:—

"Proceeding up the stream, and passing between a great number of low swampy islands, mere marshes, unfit for the habitation of man, we arrive at the little village of Gillingham, and the fortress of Upnor Castle, pleasantly situated on a gentle eminence on the right of the narrowing river. This place, with Chatham, at which we shall presently arrive, was celebrated, before the Reformation, for its wonder-working virgin, who was called Our Lady, and sometimes the Rood of Gillingham. An old legend, repeated in Kent when Lambarde wrote his Perambulation of that county, thus accounts for the cessation of the miracles at her shrine. The dead body of a man floating in the Medway was cast ashore in the parish of Chatham, where it was buried, after due inquiry, by the churchwardens. The parish clerk, who officiated at the funeral, retired home to rest; but a sense of oppression was upon him, and his sleep was disturbed and broken. About midnight, however, he fell into a more refreshing slumber, from which he was awakened by a loud knocking at his window. Still more inclined to sleep than to get up, he turned on his side, after asking in his roughest voice, 'Who was there?' The answer sent a cold shudder through his frame. Being a holy man, he knew the solemn voice of Our Lady of Chatham, who commanded him to arise and follow her. He arose immediately, and came down into the street, where she awaited his coming, sitting on the steps of the door. A halo of glory was around her head, and he bent before her in reverential awe. 'Follow me, O clerk!' said she; 'for this day ye have buried beside my grave the corpse of a sinful man. He so offends my eyes by his ghastly grinning, that unless he be removed, I can do no more miraculous workings in your town. That so great a calamity should not befall the poor people, take thou mattocks and pike, and come with me, take up the body and cast it again into the river.' Though the night was cold and wet, and he was not accustomed to such labour, he procured mattocks and followed her in silence. That he might not doubt her divine power, he noticed that, wherever she placed her foot, the grass immediately grew, and the flowers began to blossom; and at one place where she rested for awhile, a whole garden of verdure and beauty started up around her. At last they arrived at the churchyard, which was a good distance from the clerk's house, where Our Lady pointed out the spot of her own sepulture, and then that of the drowned man, telling the clerk to set to work immediately, and relieve her sainted ashes from the ghastly presence of that sinful neighbour. The big drops of perspiration stood on the brow of the clerk. He could not speak to the being of another world, but he did her bidding in solemn silence. He dug for many hours until he arrived at the coffin, Our Lady looking on with a melancholy and dignified smile. She motioned him to open it, and take the body on his back, and cast it into the Medway. He did so. The corpse grinned horribly upon him, but he had no power to let it fall, and he walked away to the river's brink. He had the curiosity to look back, when he saw the figure of Our Lady melting gradually away into the thin air, and seeming no more than the light silver mist that floats upon the mountain. With a violent effort he threw the corpse into the river; the water bubbled furiously; a ray of light danced cheerily above the grave of Our Lady; and the clerk, feeling his mind relieved from a load of sorrow, walked back to his own home, and slept comfortably till the morning. Anxious to know whether this occurrence were not a dream, he arose early and walked forth to the churchyard. He was convinced that it was no night vision, that he had indeed seen the Virgin of Chatham, long before he arrived at that place; for, from his own door, all the way they had passed, he noticed the track of verdure where the unearthly feet had trodden, and the little parterre of flowers that still grew on the place where they had rested. From that day forth he was a calmer and a better man, and the townspeople long pointed with reverence to the little tufts of grass—the earthly witnesses of the miracle. But, alas! for Gillingham, it suffered by the good fortune of Chatham. The body of the drowned man was wafted down by the stream, and found by a fisherman of that village. He took it ashore, and it was decently buried in the churchyard. The Lady of Gillingham was wroth at the pollution, but caring less for the good people in whose parish she wrought miracles, or not having the good sense of the Lady of Chatham to apply for mortal aid in the removal of the nuisance, she withdrew her favour from the place for ever, her shrine lost its healing virtues, and the prayers of the faithful were of no avail. It was observed at the same time that the earth where the drowned man was buried began immediately to sink, and so continued for many years, until the body was deposited in the great pit of perdition, when the earth was heaved up again, by no mortal means, and restored to its former smoothness. Lambarde says, this legend, though only known to some very old people in his time, was not long previously 'both commonly reported and faithfully credited of the vulgar sort,' having been received by tradition from the elders of a former age. When part of the church of Chatham was pulled down in 1788, several fragments of ancient sculpture were discovered, and among others the headless figure of a virgin and child, having a mantle fastened across the breast by a fibula set with glass in imitation of precious stones. This was generally supposed to be the figure of Our Lady of Chatham."

From Penshurst—

"Leaving this ancient seat of the Sidneys, the Medway is lost; four streams, two of which rise in Sussex, one in Surrey, and the other in Kent, claim the honourable name; but to neither of them can it in strict justice be applied. The honour must be divided among them; neither is the Medway, but each contributes to produce it. In most maps the name is given to the Surrey branch, that rises near Bletchingley, and flows past Eaton bridge to Hever Castle, Chiddington, and Penshurst. The Sussex branch rises near East Grinstead, and flows to Hartfield, Groombridge, and Ashurst, and joins the former at a short distance south-east of Penshurst. Obliged to make a selection, we shall pursue the windings of the Surrey stream, and leaving Penshurst and its patriotic and literary reminiscences behind us, tramp along the by-roads to Hever Castle. This venerable ruin was built by William de Hever, in the reign of Edward III., and is chiefly remarkable for being associated with the names of two of the queens of Henry VIII. It was purchased from the family of Hever by Sir Geoffrey Boleyn, from whom it descended to his grandson, Sir Thomas Boleyn, the father of the luckless Queen Anne Boleyn. Upon his death, it was claimed by Henry VIII. in right of his wife, and afterwards granted by him to his repudiated consort, Anne of Cleves. That quiet and amiable person lived here in seclusion for some months after her divorce, and some authorities say that here she ended her days. This, however, is not true. De Thou, in his history, is also in error when he says that she retired to the court of her brother, the Duke of Cleves, and that there she died. By the provision of an act, whereby estates in several counties of England were granted her for life, she was forbidden to leave this country, and she died at her house in Chelsea, and was buried in Westminster Abbey. From this place we follow the river to Eden, or Eaton bridge, remarking by the way, that by some this branch of the Medway is called the Eden. The village is small, but pretty and rural, and is remarkable as one of the very many places in England that were affected by the great earthquake at Lisbon in the year 1755. A pond, of about an acre in extent, was observed to be agitated in a very peculiar manner on the day in question; but no further mention was made of the matter until the news arrived in England of the calamity in Portugal, when it was brought again to the recollection of the neighbours, and public notice taken of the fact. The Medway, which we have thus tracked from its junction with the ocean, where it is a broad, rapid, and deep river, to the neighbourhood of its source, where it is but a few feet in width, and so shallow that sometimes it may be traversed dry-shod, flows altogether about eighty miles, for about sixty of which it is navigable. It is spanned by twenty-three bridges, and its navigation is aided by fifteen locks. It flows through a delightful country, and is remarkable as the deepest river in England."

And now, to conclude, what can we do better than tell all we are told about old Father Thames at top and bottom?—

"Within two miles of Cirencester is the source of the Thames—a clear fountain in a little rocky dell, known by the name of Thames Head. This is the little infantine stream, so great a giant when it arrives at its full growth. What reflections we might make upon human affairs in general, from the mere sight of this oozing well! what a homily we might preach

upon this text—the small beginnings of great things, and what encouragement might be held out to humble genius from it! Truly the course of a river bears no bad comparison with the career of an able man, who makes his own fortune in the world. How slight is his beginning! yet, how full of confidence he runs on in his career, dashing over some obstacles, and turning round others—obliged to take a tortuous course, that his waters may not be changed into an inland lake, or be dispersed in ponds over a marshy country; and that he may arrive at the sea of death, whither he must come at last, with a wealthy and powerful name! See, too, how he gathers tribute as he passes—how smaller minds bear homage unto his, and are content to obey his impulses, and run with him in a mingled stream! See, too, how by his well-acquired wealth he increases the wealth of others—how, by the judicious distribution of his capital, he affords employment, and consequent profit, to thousands! —Thus we have seen our Thames: here he is a little child at play, crawling timidly about, and ignorant of his own strength; by and by he becomes able to walk alone, as at Lechlade, where he is first navigable. Still gaining strength, and increasing in stature, he becomes like a boy, lingering in quiet nooks, and in woody places, and leading a happy life of it. Next we have him at Oxford, a youth at college—his mind filled with reminiscences of antiquity, and assuming a classical name which does not belong to him, half for frolic and half for ambition. Next, emancipated from college, we have him turning courtier at Windsor—dallying in the consciousness of his youthful grace to gain a smile from royalty, and push his fortune in the world by means of royal favour. This he soon discovers is an idle fancy; and his good sense tells him to trust to his own strength for success, and to make himself useful to the world at large, and not a mere hanger-on at a palace. He therefore quits the court, widening and deepening as he journeys on; his mind expands, as it were, while his physical strength increases. He now makes himself a reputation—his character is known over the world—he becomes concerned in mercantile speculations, in which he is universally successful, and so full of probity, that traders from all parts of the world give him unlimited credit. They would as soon believe any monstrous improbability, as his failure or bankruptcy. Now he is rich indeed; and his house (which may be called all London) becomes the mart of the world, and thousands of merchant princes attend every day at his levee. He spreads wealth wherever he goes; and a whole population live by him. This is his prime of life—his busy period—and he goes on, full of years and honour, till he is swallowed up in the dark ocean of death! The little dell, whence issues the gentle stream, is, in hot seasons, perfectly dry; but the drought that stops the supply at the fountain head has but slight effect upon the course of the stream. It has so many different feeders from various parts of the country, that at Lechlade and Cricklade it runs on its usual course, uninfluenced by the scarcity at the head. There is an amusing story told of a simple Cockney, who, on his way from Bristol to London, turned aside to visit the source of the river he was so proud of. It was a warm summer;—there had been no rain for three weeks, and the spring was dried up:—'Good God!' said he, with an expression of the utmost alarm and sorrow, 'what ruin this must cause at London! What ever will the poor people do for water!' and his busy fancy conjured up a direful picture of a thousand ills consequent upon the stoppage of the stream: no more ships arriving at London, laden with the wealth of the world—the bankruptcy of rich merchants—the shutting up of 'Change—the failure of the Bank of England—the anguish of ruined families—and the death of thousands in the agonies of thirst! The Germans tell a similar story of a traveller who visited the springs of the Danube, and which, as we are upon this subject, may serve as a pendant to the story of our Cockney. The traveller, in this case, was a Swabian, and whenever the Germans wish to palm off a joke, a Swabian is sure to be the butt. On noticing in what a small stream the water trickled at the source of that great river Danube, he formed the bold resolution of stopping it up! He put his hand across it; and as he fancied the various cities upon its course deprived of their supply of water by his deed, he exclaimed, in the pride of his heart, 'What will they say at Vienna?' * * * On the Kentish side lies the low coast of the Hoo, and the Ile of Grain, with the insulet called Yantleet; none of them possessing any attractions to stay the progress of the traveller. The Thames now mingles itself in the ocean. Its waters have long since lost their freshness; and the Nore light, stationed in the midst, gives notice to all that the course of the great stream is over. From the Essex to the Kentish shores the breadth of the *embouchure* is about six miles. From its source to the Nore the river has flowed for a space of two hundred and thirty miles, and been navigable for one hundred and eighty-eight. A mere brook in comparison with some of the mighty floods of the Old and New World; a rivulet compared with the Volga, the Danube, the Don, and some other streams of Europe; but richer and more glorious than them all. Over its placid bosom passes more wealth; upon its banks resounds the hammer of more industry; and in its ports are stationed more wonders of art and civilisation, and more engines of power and conquest, than in all the streams of Europe put together. And though its history abounds in no wild legends or startling traditions to please the lover of romance, yet its association with the names of the great, the good, and the learned, who have dwelt upon its banks, and loved it, recommends it to the friend of his country. At every step of our course some recollection has been excited, which was worthy of being noted; and if we, in the course of our rambles up and down, and on either side of it, and its tributaries, have brought little or nothing to light which was new, at least we shall be allowed the merit of having diligently culled from a thousand different and scattered sources all the memorabilia of the river, and put them into shape and form. We have striven to be exact without being elaborately learned; we have endeavoured to be a chatty companion, and not a prosing Dr. Dryasdust; and have loved to conduct the reader into green woods, and lanes, and lovely nooks, as well as into old castles and mouldy churches, possessing few attractions but their age to recommend them. If without parade of erudition we have informed the reader; if without the exercise of fancy or invention we have amused him, we have done well, and are satisfied. In pursuance of our original plan, we proceed to trace, with similar objects, the sister stream of the Medway; and, inviting our readers to accompany us, bid farewell to the Thames."

ARTS AND SCIENCES.

THE BRITISH ASSOCIATION.

[Fifth notice.]

PROCEEDINGS OF MONDAY.

THE proceedings of Monday, though a great deal of business was gone through, was expected to be, and was chiefly, remarkable for Mr. Murchison's description of the geology of Russia in the Section C, and Mr. Russell's exposition of the best form of vessels in Section G; and we might, perhaps, add the continuation of the statistical papers and discussions to which we have already so largely referred.

SECTION A.—*Mathematics and Physics.*
Papers and Communications.

1. Sir J. Herschel's 'Report on the Nomenclature of Stars.'
2. Sir J. Herschel's 'Report on the Reduction of Meteorological Observations.'
3. Mr. Kennedy, 'On Electricity.'
4. Sir David Brewster's 'Account of the Method of Daguerréotype Drawing.'
5. Dr. Forbes, 'On the Apsidal Angles of the Moon's Orbit.'
6. Mr. R. W. Fox's 'Report on Subterranean Temperature.'
7. Mr. Eaton Hodgkinson, 'On Subterranean Temperature.'
8. Professor Forbes's 'Report on the Temperature and Conducting Power of different Strata.'
9. Mr. Baily's 'Reports on the Reduction of the Stars in the 'Hist. Céleste,' and on the Extension of the Royal Astronomical Society's Catalogue.'
10. Sir D. Brewster, 'On the Phenomena of *Muscæ volitantes*.'
11. Sir D. Brewster, 'On the Line of Visible Direction, along with the Axis of Vision.'
12. Dr. Reade, 'On the Iriscope.'

Major Sabine read the Reports Nos. 1 and 2. —The first stated the progress made in the revision, involving, also, the history of the nomenclature of the stars. Those of the northern hemisphere had already been revised and examined by Sir J. Herschel, errors detected, and the true magnitudes determined. His details in like manner of the constellations and stars of the southern hemisphere were nearly completed. It was, however, a work of much time and labour. A portion, only, of the grant had been expended, but the whole would be required.—Professor Forbes explained to the Section that changes occur in stellular brightness, and therefore the scale of magnitude varies. Within the last eighty years the magnitudes have greatly altered, and the object of the grant was to correct, enlarge, and render more perfect, the old scale, in which stars only of the sixth magnitude were included. Sir J. Herschel has extended the new one to eighteen magnitudes or states of relative or consecutive stellular brightness.

The second report was merely of progress, and tabulated specimens were submitted for inspection; they promise that the reduction, arrangement, and projection, under the superintendence of Sir J. Herschel, will be most complete. The observations have been divided into groups; the chief are those of the British Isles, of the Continent of Europe, of North America, of South Africa, and of India. The very brief abstract read was considered by Sir D. Brewster so highly satisfactory, and so promising of most interesting results, that he moved a vote of thanks, which was unanimously carried, to Sir J. Herschel.

A long dissertation by Mr. Kennedy, 'On the Laws of Electrical Phenomena,' followed; but as the illustrations were purely mathematical, they would be unintelligible to the general reader without diagrams. His theory may be stated to be that of Franklin, divested of idio-repulsion and invested with the theory of the influence of equivalent spaces. Mr. Kennedy considers that he has entirely overthrown the two-fluid theory of Dufay.

Sir D. Brewster, at the request of the Chair-

man, exhibited and explained a daguerréotype, made by Mr. Thomas Davidson of Edinburgh. Splendid specimens of drawings made by this instrument were handed round the room.

Dr. Forbes, of St. Paul's, read a most elaborate paper, accompanied by very abstruse mathematical formulæ, 'On the Apsidal Angle of the Moon's Orbit,' on which the Astronomer Royal, Professor Airy, made a few remarks.

Professor Forbes then communicated the paper by Mr. Fox, 'On Subterranean Temperature;' which was followed by papers on the same subject by Mr. Hodgkinson and Professor Forbes.

Mr. Baily's report, and the papers by Sir David Brewster, were then severally read.

The only popular paper in this Section was one by Dr. Reade, on what he denominated the Iriscope: the experiments exhibited in illustration were two. A solution of Castile soap in water is put into a bottle to about half the depth, which, when shaken, leaves a soap "bubble" across the diameter of the vessel: this film, or bubble, exhibits "all the colours in nature." The other was exhibited by coating a piece of plate-glass with a solution of Castile soap in water, which after being dried was polished. This being breathed upon through a glass tube instantly produced all the colours of the iris, in a circle surrounded by a dense black ring.

SECTION B.—*Chemistry.*
Papers and Communications.

1. Mr. Mallet's 'Report on the Action of Salt and Fresh Water on Cast and Wrought Iron, and Steel.'
2. Mr. Griffin, 'On a New Mode of Crystallographic Notation.'
3. Professor Penny, 'On the Action of Nitric Acid on the Chlorates, Iodates, and Bromates.'
4. Dr. R. D. Thomson, 'On the Tests for Sulphuric Acid when thrown on the Person.'
5. Professor Johnston, 'On the Resin of Sarcocolla.'

Dr. Thomson in the chair.—The first paper read was by Mr. Mallet, 'On the Action of Salt and Fresh Water on Cast and Wrought Iron, and Steel.' The author read a similar paper to the Mechanical Section on Saturday. The voluminous results are, so far as they have been obtained, tabulated, so as to afford to the engineer valuable practical data. The investigation is still in progress, and will, when complete, exhibit the ratio of corrosive action on cast and wrought iron, and steel, under every circumstance in which these materials are employed.

Dr. Clark proposed a vote of thanks to Mr. Mallet, for the extraordinary activity and ability he had displayed in conducting the investigations on this subject at the request of the Association.

The next paper was by Mr. Griffin, 'On a New Mode of Crystallographic Notation.' The author proposes to divide crystals into seven elementary classes, or "forms," which, in the several states of combination, will constitute the planes of crystallised minerals. The different modifications of these forms he denotes by the signs plus and minus; and when combinations of forms occur, by a system of notation in reference to the sections, axes, and poles of the different crystals.

Professor Johnston considered the meeting very much indebted to Mr. Griffin, and that the thanks of the Section were due to him for the very clear manner in which he had described a system of notation of crystals, which would be no less useful to the private student than to the lecturer in the class-room.

Professor Penny, 'On the Action of Nitric Acid on the Chlorates, Iodates, and Bromates.' The author's object had been to obtain further confirmation of his researches in equivalent numbers. In this he had failed with these materials, but he considered he had obtained new results as to the action of nitric acid on the chlorates, iodates, and bromates of potassa and soda. He detailed the *experimenta crucis*, and proposed the action of nitric acid on these three clases of salts as a distinguishing test.

Dr. Thomson, 'On the Tests for Sulphuric Acid when thrown on the Person.'—Several cases which have recently occurred in the author's practice in London, and in which he has been consulted in a medico-legal point of view, induced him to bring the result of some of his experience before the Section. The usual modes of inferring that free sulphuric acid was present in hats and clothes he found to be exceedingly liable to fallacy, and this was particularly instanced in the case of the hat of the person upon whose face a quantity of sulphuric acid had been thrown for destructive purposes. He found that a portion of the hat which had been uninjured contained sulphuric acid, as well as that portion which was injured. The solution of both possessed an acid reaction, and the question came to be, Was the acid in either case free or combined? The author shewed that there was only one way of determining to demonstration the presence of free or combined acid, viz. by a quantitative analysis—by first weighing the acid contained in the entire hat, and then that contained in the injured hat. The excess of the one over the other might be considered as free acid. The usual method of proving the presence of neutral sulphates by boiling them with carbonate of lead, and concluding that if a sulphate was formed free sulphuric acid was present, he shewed experimentally to be quite fallacious; because sulphate of soda, potash, &c., decompose carbonate of lead. The author also shewed, that wherever oil of vitriol occurs we may expect to find nitric acid, because all the acid of commerce contains nitric acid. The presence of the latter acid could only be detected, in his opinion, by its property of dissolving gold and platinum when mixed with muriatic acid. The test of morphia he considered liable to produce great mistakes, as pure morphia gave no reaction with nitric acid; and the only change produced was when the morphia was accompanied with resin—that is, had been prepared pure. The author concluded by offering some strong cautions against the careless mode in which evidence is too frequently given in courts of justice on medico-legal matters, and affirmed that evidence was only of value when it was given with all the details of the experiments.

The last paper was that by Professor Johnston, 'On the Resin of Sarcocolla,' which, like all this gentleman's other discourses, was full of useful matter. Instead of consisting of a substance like sugar, the result of his numerous experiments shewed that this resin consisted of four other substances, in the following manner:—The resin of sarcocolla of commerce is separated by water into three parts:—

1. A gum, A, which does not dissolve in water or alcohol; but which is, in a great measure, washed out by means of the former solvent.

2. A portion, B, insoluble in water, but soluble in alcohol, which is of a resinous aspect, and is represented by C 40, H 32, O 14. The hydrate is C 40, H 32, O 14+2 H O, when dried at 60°. This portion, B, is separated (decomposed ?) by bases into two or more organic compounds, the alcoholic solution giving with neutral acetate of lead a salt containing an organic constituent, represented by C 40, H 25, O 16. Ammonia throws down from the mineral solutions a second salt of lead, the constitution of the organic constituent which has not yet been determined.

3. The portion taken up by water from the crude sarcocolla, when evaporated to dryness, is separated by alcohol or ether into a soluble (C) and an insoluble part (D).

The soluble portion, C, dried at 212°, gives discordant results, approaching to C 40, H 32, O 15; but when treated with bases, gave salts containing organic constituents of a different constitution.

A neutral acetate of lead throws down a salt represented by P 60+C 40, H 28, O 15; and the subsequent addition of the neutral tris-acetate, a salt represented by 2 P 60+C 40, H 32, O 16.

The portion D, insoluble in alcohol but soluble in water, consists of a gum and of a substance which is precipitated by neutral acetate of lead in curdy flocks. The investigation is still in progress, and the results are to be considered as open to correction.

SECTION C.—*Geology.*
Papers and Communications.

1. Mr. J. Craig, 'On Coal Formations of the West of Scotland.'
2. Mr. Murchison, 'On the Geology of Russia.'
3. Rev. D. Williams, 'On the Geology of some parts of Devonshire.'
4. Mr. Milne, 'On Earthquakes in Scotland.'

Mr. Craig's paper possesses great interest, and we purpose giving it hereafter at length in a corrected form; meanwhile we proceed to the other sectional doings.—Mr. Lyell, in the chair, made some remarks on Knipe's Map of England and Wales being published apparently under the sanction of the Geological Section of the British Association, whereas it had only been patronised by individual members. A gentleman present pointed out how the error, which was only a partial one, had been committed, and the subject dropped.

Mr. Murchison then proceeded to give a sketch or outline of his recent geological tour in Russia, which he had not yet had time to put into a proper form, as he hoped to do, in order to lay it before the Geological and other Societies. He spoke in high terms of the countenance he had received from the Russian authorities, and the assistance afforded him by several eminent natives of the country, whose names he mentioned.* He also alluded to preceding works on the subject, and the paucity of information which had been furnished by former geologists in this field. Previously to examining the country, he had thought that his Silurian system of sedimentary deposits must prevail in it to a great extent, but he had no idea of the vastness of the proof of the correctness by the prodigious range covered by these deposits, and also of the overlying rocks, which added most valuable evidence of the very same formation. Here he found an immense area, not interfered with by igneous rocks, and extending for thousands of miles from the north to the neighbourhood of Moscow. He had, indeed, experienced very considerable difficulty in investigating the geological features of the country, in consequence of the great quantity of detritus, of drifted mud, sand, and boulders, and masses of granite, which had been borne down and left on the surface of the original formation. No evidence of succession could be obtained, and it was not till on going to Petersburg that he had

* The chief parties named were Baron Brunow, Count Cancrin, Count Nesselrode, Count Alexander Strogonoff, Baron A. de Mayendorf (who aided the expedition), and Count Kayserling, Professor Blasius, and Lieut. Koksharoff, who rendered their personal and valuable services: the two former, naturalists; the latter, a young geologist.

met with such intelligence, as enabled him to pursue his object to a successful result. Mr. Murchison again spoke of the aid given him by the Russian government, and warmly thanked the Director-General of the Mining School, General Tcheffkine, and the Consul-General of the Empire, M. Benchausen, who were present in the Section Room, for that support to his undertaking. Thus helped, he had clearly established the fact that the oldest sedimentary deposits were decidedly Silurian.

1. The blue clay of St. Petersburg, in which no organic remains were discovered.

2. A peculiar sandstone, in which he found two fossils of a new character.

3. Limestone, exactly like that of Dudley, though with some difference in the mineral masses it contained, but agreeing in the shells, trilobites, ammonites, &c. which abound in immense quantities.

[A section of the country was exhibited, which Mr. B. Ibbetson had drawn and coloured with extraordinary expedition, and which distinctly, though roughly, pointed out the exact position of these strata. — See woodcut.]

Mr. Murchison then described the course he had taken, and the means by which he had identified the Russian formation with the upper Silurian. He had examined all the deep ravines through which rivers flowed in a transverse direction. In this manner he detected the order of superposition; and found that the formations spread to the east and west, and were lost in the north under immense masses of granite detritus of varied character. Returning to the stratification already specified, he observed that an enormous stratum of flagstone overlaid the limestone of the Silurian series;—a great red formation which he had previously thought to be the new red sandstone, characterised by salt and gypsum, but, on examination, he found it to be in reality the true old red sandstone of the Devonian system. It contained the same fossils, and the same fishes, with the same scales as were obtained in Scotland and England; and thus unquestionable proof of identity of rocks was offered, and set the question at rest for ever. He expressed his delight at gathering this result from the remarkable collocation of shells and fishes found so abundantly in Russia, and the confirmation of the theory seemed to give great pleasure to the geologists in the meeting. Higher up, above the red sandstone, was marl and impure limestone, in which, besides the holopticius, new fishes were found which he would call on M. Agassiz to point out. The holopticius was the same as was largely found in Scotland, and of which there is a specimen in the British Museum no less than three feet five inches in length. They abound in the Russian sandstone for many hundred miles, and are in vast quantities near Dorpat.* Mr. Murchison dwelt on the benefit conferred on science by the British Association, which put it in their power to bring these things together and avail themselves of the value of comparison. He then adverted to Waldai, half-way between Peterburg and Moscow, as a place where the superposition of the strata he had been describing, was most beautifully illustrated. Ascending still higher they arrived at another series—the carboniferous system, with entirely different shells. It consisted, first, of a yellow sand; and, secondly, of coal, shale, with plants, the same as in Scotland. He particularised the *Megalichthys* and the *Holoptychus Nobelissimus* (so named after Mr. Noble) as belonging to this formation. Above it lay the carboniferous system proper, yet marked by some mineral

discrepancies as in the white limestone of Moscow, but with the same productæ and other fossils as occur in the carboniferous limestone of England. This limestone resembles our chalk, and ranges a thousand English miles, in flat normal masses which have never been disturbed. Thirty or forty of its fossils were the same as those described by Mr. Sowerby and Mr. Phillips. Mr. Murchison noticed his astonishment at seeing wonderful cliffs of white alabaster, interlaminated by calcareous bands, in which were fossils, perhaps new to the science. Next in the series was a deposit widely separated from the foregoing in age, and presenting the startling fact of there being no intermediate beds between the carboniferous system and the oolites. No tertiary deposits of eocene or miocene periods, nor of the age of pliocene. He had, however, made the important discovery on the Dwina, above Archangel, of a blue shale with a multitude of shells identical with those left on the shores of the White Sea. He had gathered there a tray full of them, of existing species, and yet 300 feet above the level of the sea. The result of the whole was, that at a recent geological period all Russia was covered by the sea to the banks of the Ural mountains. He had traced the mighty blocks of northern Scandinavian origin, diminishing in size and number as they descended towards the south, and where the drift changed. The Silurian system was complete, and the white formation added with bands of silex of the true carboniferous system, and not chalk-flints. There were also peculiar trap-rocks, shewing the exact line of the drift from the north, or N.N.W.

Mr. Murchison concluded with much applause; and Mr. Lyell, the chairman, congratulated the meeting on the proof of the Silurian system being now complete. To Mr. Murchison and his successful campaign in the north they were indebted for the clear classification of the Silurian and Devonian formations. The link that was wanting in that classification, it now appeared, the geology of Russia was admirably calculated to supply. Some of the descriptions they had heard agreed very much with what he had witnessed in Sweden and Norway—the fact, for instance, that these very masses of Silurian strata run for thousands of miles, in a horizontal position, over a large portion of Europe. There was here, too, evidence of a gradual rising in Russia, such as was now taking place in Sweden—either such an upheaval as that going on in Sweden, or such a depression as is now going on in Greenland. He also remarked on the gradual loss of species in the fossil remains, and the introduction of new: not the extinction of whole races, but partial operations in different localities of the same age; for deposits containing different animal remains might be going on at the same time, and there was nothing universal. Yet the organic characters were the only guides they had to the age of the various strata of which the crust of the globe was composed; though Alps and Pyrennees might be appearing whilst all was tranquil in the deposits here. He inquired about what height the shale was to which Mr. Murchison had alluded, and was answered about 500 feet.

Some conversation ensued respecting the Baltic shells, and the number of oceanic remains found, more than 200 feet above the level of the sea, near Stockholm. This was considered to demonstrate a more moderate date for the geological formation of Russia.

Mr. Smith, of Jordanhill, said it must have been the same as the valley of the Clyde; and, after some observations from Mr. Delabeche, this interesting communication concluded.

In the course of it, we should state, very

* Some of the new fossil fishes were on the table among the other numerous known specimens, and were of extraordinary form. One, in particular, had wings so like a butterfly that it was hardly possible to discriminate it from the insect.

high compliments were paid to Mr. Miller, a stonemason of Cromarty, who had devoted himself with great zeal and ability to geological pursuits, and made many curious discoveries of fossil remains in the strata of that neighbourhood. We heard afterwards that some of the remarkable insect-looking fishes were found by Mr. Slight near Banff,—some specimens of which M. Agassiz will have an opportunity of examining in Edinburgh before he leaves Scotland.

And, speaking of this very intelligent gentleman, whom we had the pleasure to meet after the separation of the British Association, and he had made a tour to Ben Nevis and the terrace roads of Glenroy, we should mention that he has there found the strongest confirmation of his theory of the transport of rocks by icebergs; and considers that, throughout all this part of Scotland, the most perfect traces are to be made out of the prevalence and effects of the phenomena he observed among the glaciers of Switzerland.

The following appears in "The Scotsman" on the subject, the great interest of which involving the confirmation of his views, in addition to his communication to the Geological Section, induces us to insert it here, and so far anticipate Tuesday's proceedings:—

"*Discovery of the Former Existence of Glaciers in Scotland, especially in the Highlands, by Professor Agassiz.*—Professor Agassiz, of Neufchatel, has recently been studying the glaciers of the Alps with great care, and has been led by his investigations to certain bold, novel, and highly interesting conclusions respecting the part which these singular bodies have acted in the physical history of the globe. We were present when he explained his views in the Geological Section of the British Association at Glasgow, and subjoin a short outline of them, drawn up, we believe, under his own eye. To this we are enabled to add a most interesting communication addressed by him to Professor Jameson, bringing out the important fact that he has discovered distinct indications of the ancient existence of glaciers at Ben Nevis, and elsewhere in the Highlands. There are other geological phenomena which lead us to conclude that the climate of this country at a former, but, geologically speaking, a recent epoch, was much colder than it now is; and that such a state of things is consistent with the course of nature, is shewn by the fact that Mr. Darwin found glaciers reaching down to the level of the sea on the west coast of Chili, in latitude 46°; that is, 11° nearer the equator than Ben Nevis. The evidence on which M. Agassiz's experience in the Alps has taught him to rely, consists, first, of the striated and smoothed surfaces of the rocks, the direction of the striæ being along the valley; secondly, of morains, or long narrow ridges of gravel, which are deposited on the flanks of the glaciers; and, thirdly, of large transported fragments of rock, which are borne along by the glaciers in their course, or floated off by icebergs when the glaciers reach the sea. In a work just published, he has adduced powerful arguments to shew that the great valley of Switzerland, between the Alps and Jura, fifty miles in breadth, was formerly covered by one great sheet of ice. The following is a brief notice of the communication made by Professor Agassiz, *viva voce*, to the Association, 'On the Glaciers and Boulders of Switzerland:'—Professor Agassiz, of Neufchatel, gave a most valuable communication upon the glaciers of Switzerland, in which he particularly drew their attention to facts relative to the manner of their movements, which he attributes to the continual introduction of water into all their minutest fissures, which, in freezing, continually expands the mass. The effects of the movement produced by this expansion upon the rocks beneath the ice are very remarkable. The bases of the glaciers, and the sides of the valleys which contain them, are always polished and scratched. The fragments of the rocks that fall upon the glaciers are accumulated in longitudinal ridges on the sides of the ice by the effects of the unequal movement of its middle and lateral masses. The result is longitudinal deposits of stony detritus, which are called morains; but as the glaciers are continually pressed forwards, and often in hot summers melted back at their lower extremity, it results that the polished surfaces, occasioned by friction on the bottom and sides, are left uncovered, and that the morains, or curvilinear ridges of gravel, remain upon the rocks formerly covered by the ice: so that we can discover, by the polished surfaces and the morains, the extent to which the glaciers have heretofore existed, much beyond the limits they now occupy in the Alpine valleys. It even appears to result from the facts mentioned by Professor Agassiz, that enormous masses of ice have, at a former period, covered the great valley of Switzerland, together with the whole chain of the Jura; the sides of which, facing the Alps, are also polished, and interspersed with angular erratic rocks, resembling the boulders in the morains, but so far different, that the masses of ice not being there confined between two sides of a valley, their movements were in some respects different—the boulders not being connected in continuous ridges, but dispersed singly over the Jura at different levels. Professor Agassiz conceives that at a certain epoch all the north of Europe, and also the north of Asia and America, were covered with a mass of ice, in which the elephants and other mammalia found in the frozen mud and gravel of the arctic regions, were imbedded at the time of their destruction. The author thinks that when this immense mass of ice began quickly to melt, the currents of water that resulted have transported and deposited the masses of irregularly rounded boulders and gravel that fill the bottoms of the valleys; innumerable boulders having at the same time been transported, together with mud and gravel, upon the masses of the glaciers then set afloat. Professor Agassiz announced that these facts are explained at length in the work which he has just published, 'Etudes sur les Glaciers de la Suisse,' illustrated by many beautiful plates, which were laid before the Geological Section. Professor Agassiz is also inclined to suppose that glaciers have been spread over Scotland, and have every where produced similar results. If we understood him rightly, he means to follow up his valuable researches in the Highlands of Scotland during his stay in this country, where he confidently expects to find evidence of such glaciers having existed, particularly around Ben Nevis. The letter to Professor Jameson was intended to appear in the 'Philosophical Journal,' which, however, was published some days ago, and the Professor has obligingly transmitted it to us for insertion in 'The Scotsman,' with the following note:—'I enclose an extract of a letter received from Agassiz, dated Fort Augustus, October 3, which has just reached me, but too late for the 'Philosophical Journal.' As it is of great importance in a geological point of view, I send it for insertion in your journal. It proves the former existence of glaciers in Scotland, and gives what may be considered the true explanation of the parallel roads of Glen Roy, &c. &c. Ever since I published the account of the great morains in Norway, in districts where no glaciers are now to be seen, I have kept a lookout for further information on this important subject, and have not failed to lay before the public, in the 'Edinburgh New Philosophical Journal,' the results of the observations of the most accurate travellers and naturalists on the physical history of glaciers, such as of Esmark, Scoresby, Latta, Wachlenberg, Charpentier, Venetz; and, in the late numbers of the 'Edinburgh New Philosophical Journal,' also of Studer, Renoir, and above all, the truly original and beautiful investigations and views of Agassiz.

"'Extract from a letter from Professor Agassiz to Professor Jameson, dated Fort Augustus, Oct. 3d; received, Oct. 6th:—'After having obtained in Switzerland the most conclusive proofs, that at a former period the glaciers were of much greater extent than at present, nay, that they had covered the whole country, and had transported the erratic blocks to the places where these are now found, it was my wish to examine a country where glaciers are no longer met with, but in which they might formerly have existed. I therefore directed my attention to Scotland, and had scarcely arrived at Glasgow when I found remote traces of the action of glaciers, and the nearer I approached the high mountain chains these became more distinct, until, at the foot of Ben Nevis, and in the principal valleys, I discovered the most distinct morains and polished rocky surfaces, just as in the valleys of the Swiss Alps, in the region of existing glaciers; so that the existence of glaciers in Scotland at early periods can no longer be doubted. The parallel roads of Glen Roy are intimately connected with this former occurrence of glaciers, and have been caused by a glacier from Ben Nevis. The phenomenon must have been precisely analogous to the glacier-lakes of the Tyrol, and to the event that took place in the valley of Bagne. It appeared to me that you would be glad to be able to announce, for the first time, in your extensively read journal, the intelligence of the discovery of so important a geological fact.'"

The Rev. Dr. Williams (No. 3) remarked on the impossibility of the culm and plant-rocks of Devonshire being contemporaneous with the English coal-field, or the great Devonian group with any portion of the old red sandstone. The small per-centage of the carboniferous species of carboniferous testacea in the former, and the absence of the ichthyolites in the latter, as compared with the English coal-field and the old red sandstone, were to him conclusive on this point. The Cornish killas, it had been stated, were only a modification of the old red sandstone; near Tavistock, however, the culm measures dip beneath the killas. If, then, Dr. Williams observed, the culm measures be the true equivalent of the English coal-field and the killas of the old red sandstone, then the English coal-field must underlie the old red sandstone.

Mr. David Milne then gave an account 'Of the recent Earthquakes in the North of Scotland.' Since the year 1788 shocks have been remarked, and have been partially registered. Three-fourths of these seem to have issued from Comrie, in Perthshire, and most of the others from the banks of Loch Ness. The district of Comrie contains mica slate, clay slate, and greywacke, with hills of granite and compact feldspar, which have elevated the other rocks, the conglomerate of the greywacke

containing no pebbles of granite or feldspar: but on the former rocks is old red sandstone containing these pebbles. There are also some remarkable greenstone dykes, which seem to run parallel to each other from sea to sea, in east and west direction, and cutting the oldest and newest strata. The shocks emanated from a granite hill, or from the junction between it and clay slate, about two miles off Comrie. In October 1839, there were sixty-six shocks; November, twenty-one; December, nineteen; January 1840, eight; February, six; March, thirteen; April, eight; May, five; July, six; the severest being on the 23d of October, at half-past ten P.M. It was felt as far north as Lochaber and Dingwall, and south as Carlisle and Coldstream; varying in intensity in different places. The shocks appear to come from a central point, as their direction is different at different places: at Comrie being from the north, at Dunkeld from the south-west, and at Loch Earn Head from the east. There was an upward motion at Comrie, and at other places it was oblique. There was, likewise, a diminution of intensity and sound as the distance from Comrie increased; and there was, in each place, a marked difference in the damage done to houses. The shock was more severely felt where the soil was alluvial; although, in this case, the sound was not heard as in rocky places. Occasionally there was a fall of fine black powder, and in some places there was a sensible smell. Various explanations may be given as to the rationale of these shocks; but one of the readiest is the passage of water down to some heated mass below, and its consequent conversion to steam. As bearing on this, the shocks are found to have been more frequent at the time of the year when the greater quantity of rain falls, and when the barometer is lowest. During the last fifty years, 198 shocks took place in the winter half year, and 61 in the summer. Mr. Milne mentioned that a gentleman in Comrie is making accurate observations of these phenomena, and described a simple but ingenious set of instruments he employs. The latest shock had occurred on the 12th of August this year.

Professor Buckland remarked, that as we were now in the land of earthquakes, he would tell them what to do when an earthquake occurred. He had been at Palermo, and learned that. If an earthquake were to occur at present, those sitting in the centre of the room would be in the greatest danger; he who was sitting at a window would be in the least. In such circumstances, let them betake themselves to a door or a window, for the roof and flat beams give way first, and the upright walls longest withstand the shock.

SECTION D.—*Zoology and Natural History.*
Papers and Communications.

1. Mr. Danson, 'On the Alpaca;' living specimens of which were exhibited.
2. Dr. Lizars, 'On the Organs of Sense in the Salmon.'
3. Mr. Strickland, 'On the True Method of Discovering the Natural System in Zoology and Botany.'
4. Professor Agassiz, 'On the Animals of the Red Snow.'
5. Professor Agassiz, 'On an Animal inhabiting the Ice of the Glaciers.'

The communication respecting the Alpaca was of great interest, both to manufactures and agriculture; several living specimens of the animal being exhibited in the Square of the College, by Hunter's Museum. They looked healthy and vigorous; and, we have no doubt, will soon be naturalised in this country, and spread like sheep or goats over its hills and pastures. An enterprising individual at Liverpool is engaged in the undertaking, and has given large sums for their importation from South America. The wool is beautifully long and fine; and we have seen a small quantity of it woven into a fabric of peculiar delicacy and utility.

Mr. Strickland read a paper 'On the True Method of Discovering the Natural System in Zoology and Botany.' The object of this paper was to shew that the affinities of species and groups follow no regular or symmetrical order, such as is exhibited in artificial systems, but that they radiate and ramify irregularly in all directions. He consequently inferred that the only means of arriving at a knowledge of the true system is, to discard all *à priori* considerations, and to trace out and delineate the affinities of species by an inductive process, similar to that of a geographical survey. To do otherwise was not to follow Nature, but to clip her into forms as they saw yew-trees clipped by curious gardeners. In illustration of this he exhibited some sketch maps, intended to shew the true order of affinities in certain families of birds.

Mr. Vigors defended those who had adopted artificial arrangements, whether rotary, quinary, or lineal. All they attempted to do by their various modes was to exhibit affinities and assist the memory. There was only one natural system — the system of the universe.

Dr. Lizars read a paper 'On the Organs of Sense in the Salmon.' After alluding to the importance of combining the investigation of the structure of animals with their external character, and stating that the anatomy of the salmon had hitherto been almost entirely overlooked, he proceeded to describe it, and the functions of the organs of the senses in this animal. After dissecting the skin, he arrived at the conclusion that it was not very highly organised for the function of touch. He arrived at the same conclusion with regard to the organ of taste. The organs of smell, sight, and hearing, he minutely explained, and demonstrated satisfactorily that these organs were highly developed. In the course of his interesting remarks he shewed the analogy of these organs to the organs of sense in man, and illustrated his subject by a series of fine paintings and drawings.

The paper was followed by some valuable observations from Professor Agassiz, who stated that he agreed in almost every point with the views so ably advanced by Dr. Lizars.

In consequence of the day being so far spent, the discussion, on the suggestion of Dr. W. Jardine, was postponed till next day.

Professor Agassiz, who spoke at considerable length in French, announced the extraordinary discovery, lately made by him, that the *Protococcus nivalis*, a minute substance which colours snow red, is not, as has been hitherto supposed, a vegetable, but the egg of an animalcule, a species of rotifer. This he had proved by examining the protococcus in all states of developement, and by finding the ovaries of the rotifer filled with it. He also gave an account of an insect of the podura tribe, a new genus, which he has discovered in great numbers inhabiting crevices in the ice of the glaciers. This creature is supposed to feed on the animalcules which abound in the ice. The learned Professor illustrated his remarks by exhibiting a number of beautiful drawings, and was listened to throughout with marked attention.

SECTION E.—*Medical.*
Papers and Communications.

1. Dr. Charles Williams, 'Report of Experiments on the Physiology of the Lungs and Air-Tubes.'
2. Dr. Sym, 'On the Physiology of the Ear.'
3. Dr. Rees, 'On the Preparation of Subjects.'
4. Dr. Fowler, 'On the Fifth Pair of Nerves.'
5. Mr. A. Ure, 'On the Operation for Squinting.'

Dr. Watson, President, in the chair. — The Secretary read a 'Report of Experiments on the Physiology of the Lungs and Air-Tubes,' by Dr. Charles Williams, of London University College. The objects of the investigation were to test the existence of muscular irritability in them, and determine its character. Dr. Williams was assisted by Dr. Sharpey of London, and others; and the experiments seem to have been judiciously planned, and performed with great care. The experimenters having completely satisfied themselves of the existence of muscular irritability in the air-tubes, proceeded to investigate how it was influenced by various medicinal agents which medical men are in the habit of employing in diseases of the lungs. Almost all of the experiments prove that the air-tubes are endowed with irritable contractility, excitability, electric, chemical, and mechanical stimuli; and, probably, they possess also tonic contractility, but it does not appear to exist in the vesicular terminations of the air-tubes. This contractility resembles that of the intestines, or arteries, more than that of voluntary muscles, the œsophagus, or heart; the contractions and relaxation being more gradual than those of the latter, but less tardy than those of the former. The irritability of the bronchial muscles is soon exhausted by the action of a stimulus, and may be, in some degree, restored by rest, even when the lung is removed from the body for an hour or more. But when the stimulation is long continued, as by intense irritation of the mucous membrane during life, the irritability is not restored by rest, and the tonic contractility alone remains. The contractility of air-tubes is much influenced by the mode of death, and several vegetable poisons impair or destroy this contractility. Extracts of stramonium and belladonna produced this effect. Strichnia, conium, and morphia, also impair this property considerably; but hydrocyanic acid in no degree produces this effect. These poisons, and different modes of death, do not act on the irritability of the bronchial tubes in the same degree as they do on that of the heart and other contractile tissues, and they do not seem to act equally on the irritability and on the tonic contractility of these tissues. Mechanical and galvanic irritation of the vagi had no effect on them; and, passing a galvanic current through the nerves to the lungs, caused much less contraction than passing it through the trachea. A vote of thanks was unanimously given to Dr. Watson; and, after a short discussion, the report was ordered to be printed.

Dr. John Reid then read an elaborate memoir 'On Asphyxia.' It was an analysis of an experimental investigation into the cause of arrestment of the blood in the right side of the heart in asphyxia, and of the arrestment of the sensorial functions. The former was proved to depend upon the cessation of the chemical changes at the lungs, and the latter upon the circulation of venous blood through the brain.

Dr. Brown, and others, having made a few remarks, Professor Buchanan gave an account of some experiments which he had performed, for the purpose of determining the nature of the coagulum of the blood.

Dr. Sym read a paper 'On the Physiology of the Ear,' and came to the following results:— 1. The external ear protects the membrana tympani, and at the same time gives a knowledge of the direction of sounds. 2. The membrana tympani presents a large recipient surface for sonorous impulses, which draw its apex outwards. 3. The ossicula of the tympanum constitute a system of levers, by which motions

of the membrana tympani are transmitted to the fenestra ovalis with their extent diminished, and their momentum preserved. 4. The laminæ of the cellular bones which surround the ear convey vibrations from the larynx by means of the ossicula to the f. ovalis, and these have their extent increased, whilst their momentum is preserved. 5. The combined effect of the difference of extent of the membrana tympani and f. ovalis, and the difference of range of motion of the point of the malleus, and base of the stapes, is to concentrate the impulses of the air, and adapt them for being transmitted, without loss, to a denser fluid. 6. The stapes is raised from the f. ovalis by the impulses of the sonorous undulations. 7. The muscles of the tympanum restore the membrana tympani and the base of the stapes to their quiescent positions. 8. The fenestra rotunda permits the pressure of the atmosphere to act through the Eustachian tube upon the water of the labyrinth, so as to enable the stapes to be raised. 9. The water of the labyrinth oscillates over the auditory pulps by the alternate suction and pressure of the stapes, and this excites the sensation of hearing. 10. The extent of oscillation is regulated by the cochlea, the laminæ of which expand and contract according to the degree of friction to which they are exposed. 11. The aqueducts are *diverticula* for receiving the water displaced by the expanded laminæ. 12. The petrous bone deafens the internal ear by excluding such vibrations as are not transmitted by the ossicula.

Dr. Cooper, of Glasgow, complimented the author, and dwelt on the philosophical manner in which he had conducted his researches.

Dr. Rees made some observations 'On the Preservation of Subjects for Dissection,' and shewed some specimens prepared by the injection of pyroxylic spirit into the aorta.

Professor A. Thomson, and others, expressed their entire satisfaction with the working of Mr. Warburton's bill; but were of opinion that it was, nevertheless, of the highest importance to be able to preserve bodies for several months, and thought a clause might, with advantage, be introduced, allowing teachers to keep subjects for a longer period than the law at present sanctions.

The subjects of Dr. Fowler's paper (No. 4.) were:—1. The sensation of tension felt (on approaching any metallic point, or even that of a pen, to the forehead between the eyes), probably by the muscular sense in the adductor muscles, first noticed by Bishop Berkeley as the sense by which we judge of angular distance. 2. The contraction of the iris as often as a rod or tube of silver is passed high up a nostril, and brought in contact with a plate of zinc, under or upon the tongue. 3. The reciprocal influence which the organs of sense have in exciting the adjustments of each other. 4. That sensibility and contractility generally are supplied, not by the brain, but by the arteries of the parts through which they are distributed.

Dr. Cooper, one of the Secretaries, read a paper by Mr. A. Ure, 'On the Operation for Squinting.'—Dr. Laurie said that, though the operation was an excellent one, it was not in all cases successful. Professor Buchanan thought the want of success depended on defect in the associating power of the different muscles.

Dr. H. Lonsdale exhibited two interesting pathological preparations. The one was an ossified *tendon Achillis*, and the other a case of exostosis. He stated that his object in exhibiting the latter preparation was to counteract those exclusive opinions which many entertain on the subject of ossification, and considered that it was of value in shewing that bone may be formed by vessels which belong to the soft parts, even in muscular fibres adjacent to one of the long bones, and more especially pointing out the caution which we ought to observe in placing a limit to Nature's powers.

Dr. J. R. Cormack, thought that the preparation was not in itself sufficient evidence that the soft parts could produce bone, for the exostosis was connected with the femur, and might have proceeded from it; and, then, it would have been well had the author made a chemical examination of the osseous deposits not connected with the femur, to discover whether they were really of a bony nature. Dr. Lonsdale referred to the difference of structure between the exostosis and the bone itself.

Dr. John Reid detailed the experiments of Mr. Syme on the regeneration of bone. They shewed that the periosteum had the power of producing new bone, but he did not consider them as establishing that it was by the vessels of the periosteum only that new bone was deposited; nor did Mr. Syme hold this opinion, as far as he was aware.

SECTION F.—*Statistics.*
Papers and Communications.

1. Dr. Alison, Conclusion of Paper commenced on Friday.
2. Dr. R. Cowan, 'On the Vital Statistics of Glasgow, illustrating the Sanatory State of the Population.'

Lord Sandon in the chair.—The proceedings began by the reading of a paper entitled 'Vital Statistics of Glasgow, illustrating the Sanatory Condition of the Population,' by Robert Cowan, M.D., Professor of Medical Jurisprudence and Police in the University of Glasgow. The Tables were very extensive.

Dr. Alison concluded the paper which he commenced on Friday (*Lit. Gaz.* No. 1238, p. 657), illustrative of the Scottish system of the management of the poor as follows:—"I stated that the grounds of expediency on which the non-execution of the Scottish poor-law is chiefly rested are two; the anticipated effect of a legal provision on which the poor know they can rely—first in their number, second in their character; and my object is to shew, by statistical facts, that the system now in force has, at all events, had no beneficial effect in either of these ways, and affords no good reason for continued neglect of the laws. I had nearly concluded what I had to state as to the evidences of redundant population, and to their attendant evils, and the imperfect provision for their relief. I can produce returns, received only this morning, from the Provost of St. Andrew's, now present, and from one of the magistrates of Aberdeen, exhibiting results as to the destitution of old and infirm persons, the miserably scanty provisions for them, and the neglect of the education of pauper children, very similar to those which I quoted from Edinburgh, Dumfries, and from the small towns examined by Mr. Chambers. I said further, that I believe, as Malthus and many others have shewn, and as Dr. Cowan has this day amply illustrated, that the frequent extension of epidemic fever is one of the surest indications of redundancy; and that we have good evidence of such fever prevailing much more frequently and extensively in Scotland than in England, or, I believe, in any other country in Europe where a legal provision against destitution is regularly enforced. I mean continued, contagious, often spotted fever, not the intermittent or remittent fever, which is now almost extinct in Scotland. I understand that the mortality from continued fever, in some of the great towns in Scotland, has been not only much higher than the average in England, but much higher than in any great town in England; exceeding the mortality, by consumption, for one year in Glasgow, and for four years together in Dundee: whereas in the English towns it is rarely above a third, and hardly even above a half, that by consumption. I said, also, that I believe this difference as to the mortality from fever between the English and Scotch towns is greater than appears by the reports to the register-general of England. The number of cases of fever returned were greater than I expected, and I suspected some ambiguity existed as to the cases called fever. This suspicion is fully confirmed in Dr. Cowan's opinion, as well as my own, by a Table communicated to me by Mr. Chadwick, shewing the deaths from fever in the Bethnal Green district in London—the worst district there. In 1838 there were 264 deaths from fever, which might imply about 300 cases; but 115 of the 264 were under the age of ten, and we know that under that age the mortality from contagious fever is trifling: not above 1 in 35 — according to Dr. Cowan's Tables—in Glasgow, and at least as small in Edinburgh: 115 fatal cases would imply above 4000 cases below ten. I infer, therefore, with perfect confidence, that many of the cases reported as deaths from fever, in the English reports, were cases of febrile disease indeed, but not of the contagious fever which we speak of as the curse of the Scottish towns. If it is true, as I have stated, that the inadequacy of the legal provision is a powerful cause of disease existing in the great towns, beyond what exists in England, it will naturally be expected that the mortality will decidedly be greater, and I have no doubt that this is the case; but, after taking some pains on the subject, I have come to the conclusion that we must wait another year before we can give perfectly satisfactory evidence in regard to it. All estimates of the increase of population since last census in the year 1831 are somewhat uncertain; and, of course, all estimates of mortality having reference to such estimates are only approximations." After disposing of the arguments on the part of the defenders of the Scottish system of managing the poor, with respect to restraining the growth of the population, and to maintaining the independence of the Scottish poor, the learned Doctor proceeded to read an extract on this subject from "Researches on Pauperism in France," by Sir John M'Neill, and from memoranda of an account by Mr. Wallace (the latter also quoted), of the administration of the poor in Edinburgh, by Mr. Chadwick. He agreed with Dr. Chalmers as to localisation; but the Rev. Doctor might continue to urge his views, but would be unsuccessful if further means were not placed in the hands of the proper parties. In conclusion, Dr. Alison stated that, before an improvement could be effected, four things were required: viz. "1. That there should be a compulsory and effectual provision, defined and regulated by the law, for the relief of destitution, whether resulting from age, or infirmity, or want of employment. 2. That this relief be so administered as to make the situation of every able-bodied pauper receiving it less eligible, on the whole, than that of an independent labourer. 3. That a system of strict inspection be exercised over all who receive this relief, with a view to its being always apportioned to their real wants, and so suited to their character as to favour the effect of religious and moral instruction. 4. That in order to fulfil these conditions, particularly in the case of able-bodied persons, in the case of orphan children,

in the case of old and infirm poor, or without relatives, and in the case of persons of immoral conduct, well-regulated workhouses be always at the command of those who administer this legal relief. These propositions seem to me to contain the general result of the lessons of experience on this subject in all countries where it has been carefully and successfully studied. If you do not choose to examine the practice, or to trust to the experience of England, let us look to the example of Holland, of Prussia, Austria, Bavaria, Wirtemberg, Switzerland, Denmark, Sweden, America, Russia, or even Siberia; in all, I think, we shall find, under some slight variety of practice, the same principles admitted and enforced. But if we decline to compare the results of the system now in force in Scotland with the systems elsewhere established, and persist in the belief that our own experience is sufficient to guide us, that our practice is superior to that of other nations, and that the theory on which it has been rested is a sound one,—I venture, with all possible deference and respect for the opinions of others who have thought differently, to assert that we are trusting to a broken reed; that we are falling behind, not preceding, other nations in the advance of civilisation; and, what is far more important, that we are mistaking, and, because mistaking, neglecting a duty which is equally recommended to us by nature and revelation,—the faithful performance of which has been expressly enjoined on the more fortunate members of society as an acceptable service to Him in whom we put all our trust, and without the faithful performance of which we have been expressly warned, that 'Whosoever liveth is accounted dead before Him.'"

Dr. Chalmers stated that he would not enter into the question to-day; but, since the Committee had kindly allowed so much discussion on this question, he would enter upon it to-morrow.

SECTION G.—*Mechanics.*
Papers and Communications.

1. Mr. Milne, 'On an Improved Gas-Regulator.'
2. Mr. Coles, 'On Railway Carriages.'
3. Professor Gordon, 'On the Turbine Water-Wheel.'
4. Mr. Whitworth, 'On Producing True Plane Metallic Surfaces.'
5. Mr. Scott Russell's 'Report on the Forms of Vessels.'
6. Mr. Vignoles, 'On the Economy of Railways, in respect of Curves and Gradients.'

Sir John Robison in the chair.—Mr. Milne described the Gas-Regulator, and illustrated the same with a drawing and dissected instrument. He entered largely into the beneficial results to be expected from the use of this instrument, particularly to dwelling-houses and manufactories of three, four, or more stories high, and stated that one of his regulators was exhibited in the Model Room, having attached to it several gas-burners, by extinguishing one or more of which the effect would be discovered. The effect was not so great in Glasgow as in other places, in consequence of the very small pressure at which coal-gas is distributed in Glasgow.

Mr. John Taylor expressed his great satisfaction at seeing such an instrument. The want of it was much felt in London. In his own house he felt great inconvenience. In the early part of the evening he had not more than the required supply, while in after-hours he had too much.

Mr. Andrew Liddell stated that Mr. Taylor might have been supplied with instruments to produce the effect wanted in a very great degree; for, upwards of twenty years ago, Mr. Samuel Clegg invented a gas-regulator. Since that period many individuals had made similar instruments. Mr. Milne's instrument included all the advantages of the older instruments, with some peculiar to itself, and explained why it was that the pressure of gas was so much less in Glasgow than elsewhere, and consequently less required the governor.

Mr. Roberts stated that the instrument now before the Section might answer the purpose, but that it was rather expensive. In 1817 he invented an instrument that would produce the desired effect, and could be made for eighteen pence: he described this, and made a drawing of the same on the board.

Mr. Milne said that Mr. Roberts, fifteen years ago, had supplied him with a similar drawing, from which he made an instrument, but it had not the effect.

Mr. Liddell said Mr. Roberts's instrument, being extremely simple, could be made very cheap; but as useful effect is what is wanted, he would like to hear if Mr. Roberts had actually tested his instrument by applying it to houses or factories. If so, their description; and to state the varied pressure in the gas mains; and to state the highest and lowest, say if it ranged from $\frac{1}{8}$ to $1\frac{1}{2}$ inch.

Mr. Roberts said he had taken no notice of this.

Mr. Thomson read a paper from Mr. Coles 'On Railway Carriages.'

Professor Gordon then read a paper 'On the Turbine Water-Wheel,' which might be used most advantageously on all falls above fifty feet and under ten feet.—The particulars in our next number.

Mr. Whitworth exhibited two iron plates to illustrate the improved method of getting up metallic surfaces, or rather to shew the result obtained. The practice hitherto has been grinding; filing and scraping are the new modes, especially the latter. On the old plan the original irregularities were propagated throughout the process, but by covering the surface with colouring matter after planing and filing, the scraping-tool, under the direction of an experienced workman, produces a true plane. The plates attracted great attention, and elicited the praise of the Section. When one was placed carefully on the other they adhered with considerable force; so strongly, indeed, that one could be lifted by the other, and the weight was not small. But if no care were taken in this experiment there would be no contact, the upper one would slide off on the film of air as though there were grease between the plates. A human hair between caused the plates to revolve with the slightest touch, and when one was allowed to fall on the other there was no metallic sound. Mr. Whitworth observed that possibly absolute truth was unattainable; the present, however, was an approach to it, but he considered the practical limit not yet reached.—Mr. Russell remarked that by these means we might almost get rid of friction altogether.—Mr. Roberts pointed out the great value to be derived from this new working to solid pistons, &c.—Sir J. Robinson directed attention to its application to the production of Mr. Nasmyth's specula.

Mr. Scott Russell next submitted (No. 5) the proceedings of the Committee appointed last year at Birmingham to conduct experiments on the forms of vessels, for which purpose 200*l.* had been voted. At the time the Committee commenced their investigation it was well known that a great number of experiments had already been made, at an enormous expense and on a gigantic scale, to ascertain the form of a vessel that would pass through the water with the least resistance. No practical use of them, however, had been made, and ship-builders continued to act upon empirical laws or rules of thumb, not knowing, but leaving to chance, the result of their operations. The first object, then, was to conduct the inquiries so as to secure precision, and to entitle them to the confidence of practical men. After describing the errors and inconveniences of the methods previously adopted, Mr. Russell proceeded to relate, and to submit to especial notice, the simple apparatus by which they had been enabled to arrive at accurate conclusions, and the principle on which it depended. At the end of the channel, say of a mile in length, a kind of pyramidal structure was erected, and a horse-road made. At the top of the pyramid were fixed two wheels or pulleys, also two at the bottom, and attached to the ground. The rope from the boat at the farther end of the channel passed along to the lower wheel and round it, up and round one of the wheels above, through a pulley to which a weight was attached, and suspended in the bight by the rope again leading up over the other wheel at the top, and again down under the second lower wheel, and thence to the horses. By these means, any sized boat may be drawn any distance with a constant pressure. When every thing is prepared and the boat let go, attention should be directed to the suspended weight, which will immediately begin to move if the horses remain still; but if they go on and draw away the slack rope rapidly enough, the weight will remain absolutely at rest. This is the principle of the operation, and the weight may be suited for drawing the boat from twelve to seventeen miles an hour: the friction is almost nothing. Exactly similar results may be obtained from experiments on a small scale, with hand-power, and by means of a light concentric wheel great rapidity may be attained. Another very important piece of apparatus for the correctness of the experiments is Robert's instrument for measuring short intervals of time;—an exquisite apparatus, Mr. Russell termed it, by which observations may be made to two-tenths of a second, and registered; and any leaning or desire, so difficult to control, to help the experiment the way you wish it to go, put out of the experimenter's power to indulge. A spring, and not the holder of a watch, was the observer, and a spring recorded the observation. Thus there had every possible means been employed to ensure accuracy in the experiments, the nature of which was twofold—to ascertain in what way water resisted vessels, or how the particles of water acted or behaved themselves when bodies moved through them; and the form most suited to meet such behaviour. The first was a most important point. It had been imagined that the particles of water pressed upon by the vessel passed underneath: this, however, could not be the case in a full channel, where the pressure would be equal on all, and where there could be no room for them to pass down: nor is it so in any case. The only effect produced is what is termed a wave under the bow of the vessel, which wave causes motion in the water and moves it away. What, then, is the best form of vessel to meet this action? Many experiments were made about six years ago, and then the spoon-bow was considered to be the *ne plus ultra* of form. The water, it was thought, lifted the spoon-bow, and did not go out of the way, but moved in lines called the riband lines, instead of horizontally. These were arranged to suit this movement, and the spoon-bow build was deemed the best possible construction. The question, however, investigated next by the Committee

was how the water, when disturbed or displaced by the protrusion of a solid surface, got together again; and this furnished a most important result. It was supposed that the same particles displaced came together again from the sides horizontally; but this is not the case—entirely new particles come from below vertically. Whatever the form of the vessel moving along, the particles almost entirely from below rise in a wave perpendicularly into the space she is leaving, as though they lifted her out of the water. The object, then, was to produce the easiest way for the water to get up. At the bow, remember, the principal or only motion in the water is horizontal displacement; and at the stern, vertical replacement. Thus, then, had they arrived at a point which led to valuable results. They first, however, previously to experimenting on the best form of water-line and vertical-line, went to ship-builders, and inquired of them what sort of vessel they best liked and most wanted; and, on those principles pointed out, they proceeded to make trials by alterations in water-lines. The favourite amongst shipwrights, then, was what Mr. Russell termed, and technically correct, the cod's-head principle and the mackerel-tail principle, or round at bow with a fine line aft; and on this, at the time of their inquiry, general principle, they conducted a series of experiments which led to the construction of the wave form, or principle—a most extraordinary one as to practical results. If a wave, they discovered, be produced in water, it propagates itself to a great distance; and this mere motion passing along occasioned in the particles of the water the same horizontal displacements that the progress of a foreign body would. And hence they concluded that the form exhibited in the wave would be the form of least resistance, and they constructed a vessel on the wave principle—of a convex shape with large capacity in centre, fine in bow and stern; modified, however, eventually, to exactly the reverse of the cod and mackerel principle before explained. With this shape passing through the water, a most remarkable circumstance corroborative of their views was observed. Under the bows of the old form a large wave or crest was constantly foaming, and offering resistance; with the new, on the contrary, even going at the rate of seventeen miles an hour, there was not even spray, but only a wave or swell which propagated itself to a great distance. The water-lines of the new form, if we understood Mr. Russell rightly, were straight lines. It is not, however, of such moment that we should be critically correct in this our necessarily hurried notice, because the Committee have left nothing undone to establish this important improvement and its general adoption in naval architecture. They have caused drafts to be made, not of models for ship-builders to follow out on a large scale, but accurate representations of large vessels. And, moreover, it is their intention to publish the drawings and results of all the cases. In the course of the experiments one or two curious results presented themselves, when high velocities were employed, in relation to the form of the vessel, and to the behaviour of the particles of the water. On a model of a bluff entrance and fine mackerel-tail being drawn through the water at a certain speed, the water rises abruptly at the bow, and the vessel falls down greatly abaft—a sign of great displacement; but, with a model of the new form, the case is totally different: instead of the white surge under the bows, there is nothing but a gentle, and almost invisible, swell, which propagates itself at high velocities. At greater speed, still with the new form, a remarkable phenomenon occurs:—the water rises above the vessel on each side like large gossamer-wings, and the vessel flies along with the bow and stern entirely out of the water. Mr. Russell would scarcely venture to state what may be the result of this exquisite phenomenon; the speed to be attained with ease may be railway pace; and when a ship mounts her gossamers she may truly be said to be riding on the waves, or, for others' fancy, to be taking flight. The form best adapted for this very swift passage appears to be a bow exceedingly fine and sharp, with the stern very full and very capacious. These results, however, were merely given for others to draw their own conclusions. Already 2800 separate experiments had been made; it was intended that 10,000 should complete the series, when it was conceived the question would be for ever set at rest. At present they were so far completed as to justify the Committee to point out the results to shipwrights to approve and adopt. Eight vessels are now building and built on the new principle.—A discussion ensued with reference chiefly to the mode Mr. Russell adopted to illustrate one of the old experiments on this question, with the vessel fixed in the running stream, namely, billiard balls and cushion; but it led to no result worthy of notice.

Mr. Vignoles read an able paper 'On the Economy of Railways, in respect of Curves and Gradients.'

The proceedings of the General Committee on this day we have already reported; and a repetition of the Evening Promenade, with which it concluded, offers nothing new for remark.

PARIS LETTERS.

Academy of Sciences, Oct. 6, 1840.

1. SITTING of September 28th.—M. Guyon, chief surgeon of the army of Africa, addressed to the Academy the result of his medical observations in that country. At Philippeville, the ancient Rusicada, the intermittent fevers of the country, to which the French soldiers were subject, had been much aggravated by ophthalmia; and it was also a curious circumstance, in all parts of the provinces, that the soldiers, during the great heats, would suddenly fall down as if suffocated. Some had three or four such attacks and then died. At Philippeville, an ancient tomb shewed that a native of Cyrene who had come thither had lived to the age of 108. At Constantina, a case of goitre had been observed in a Kabyle from the mountains; and an individual of one of the native tribes, from the same district, had been found nearly in a state of cretinism. Near Miloh he had observed an Albinos of fifteen or sixteen years of age; although the day was cloudy, the boy was obliged to shade his eyes with his hand. At the same place there had been an unfortunate female idiot of eighteen years of age, whose origin was entirely unknown. She went always in a state of nudity, and wallowed in the mire like a hog; her skin was covered with filth and flies, which it was her amusement to catch and eat. She fed on blood and raw meat, and was universally regarded as a saint: the natives were glad to get her to put one of their bornouses on for a minute, and then considered the garment as sanctified by her touch. —M. Gauthier de Clanbry announced that in cutting a trench for a railroad at the collieries of Bert, a fresh-water formation, containing a great quantity of fossils, had been gone through. Among the objects found were the vertebra of a palæotherium, the remains of a crocodile, a tortoise, and some fish. This formation lay in a small basin, surrounded by the primitive rocks which circumscribed the coal-field of Dampierre and Bert.

RIUNIONE DEGLI SCIENZIATI ITALIANI.

(*Italian Scientific Association.*)

Turin Meeting, Sept. 25, 1840.

1. *Medical Section.*—The controversy relative to the stimulative or non-stimulative powers of the bearded rye was resumed, and several professors delivered their opinions on one side or the other. Professor Corneliani thought it to be a decided antistimulant; Professor Garibaldi was of the opposite opinion. Dr. Polto opposed the idea that the communications of the glanders from a horse to a man was not possible. Professor Lessona maintained that the disease was not transmissible, and alleged several experiments. Dr. Polto replied that the experiments ought to be so conducted as that the hostile principle should be made to act on parts of the body the most liable to admit contagion.

2. *Geological Section.*—General Rachia communicated to the Section that the Sardinian government was about to make a new road by the Mont Cenis, which would pass through a tunnel of some thousand yards in length, about 650 yards below the level of the highest point of the present pass.—The Cavaliere De Rio read a report 'On the Geographical Part of Captain De Bartolomeis' Topographical and Statistical Notice of the Sardinian Territories.' —M. Michelin communicated his 'Chart of the Principal Geological Formations,' with the fossils, animal and vegetable, characterising them.—The Marchese Pareto, President of the Section, exhibited his 'Geological Map of Liguria and the adjacent Districts,' and explained the principal divisions.

3. *Physical, Chemical, and Mathematical Section.*—Professor Pacinotti communicated a notice 'On the Force and Direction of Electric Currents.'—The Engineer, Signor Michela, read a short memoir 'On the State of Navigable Canals in Piedmont, and on various Ameliorations of which they were Susceptible.'—In the Sub-section of Chemistry, constituted according to a previous resolution, Signor Canobbio read a curious memoir, and exhibited tables, 'On the Composition of Rain-Water.'

4. *Agronomical and Technological Section.*—A discussion was entered into on the best means of cleansing and dressing flour.—A committee was named to report on a new plough invented by the Vice-President.—The Cavaliere Bonafous presented two specimens of wheat, the *Zea cryptosperma* and the *Zea cristata*, with a variety of the *Zea Pennsylvanica*.

5. *Botanical Section.*—Professor Notaris expressed his opinion that the genus *Stiffia*, proposed to be so characterised by Dr. Nardo on a previous day, was nothing more than a variety of the *Padina omphaloides* of Montague. Dr. Nardo maintained that the genus was a true one, but was willing to adopt the name *Zanardinia* instead of *Stiffia*, which was already a botanical term.—A letter was read from M. Michelin, starting the question as to what plants more particularly grew upon white geological soils, &c. Professor Decandolle, Signor Moretti, and others, took part in the discussion that ensued on this point.

6. *Zoological Section.*—Signor Verany distributed among the members a systematic table of the *Cephalopodi* of the Mediterranean, in which each species is represented by an engraving. The author gave a verbal explanation of the more remarkable species, and exhibited some beautiful drawings of the several

species made from the living objects.—Signor Pasini suggested that the tables of the mollusci which had been drawn up and engraved by the late Professor Renier, of Padua, should be published. Most of the members approved of this idea.—M. Bassi read some observations contesting the accuracy of M. Verany's notion, that the argonauta produced its own shell.—Signor Risso read papers on various species of fish from the Mediterranean, and from several rivers of Italy.

September 26.

1. *Medical Section.*—Professor Riberi read a paper 'On the Cure of Diseased Breasts in Mothers.'—Dr. Cantu mentioned a peculiar case of the oral and intestinal evacuation of lizards in a female. Dr. Nardo contended that this was zoologically impossible.—A long discussion was gone into on various uterine complaints.—Dr. Maior exhibited to the Section his manner of making improved warm bandages for ligatures, in cases of amputation, &c.

2. *Geological Section.*—The Secretary, Professor Pasini, read an extract from his synoptical table of the various formations of Italy, drawn up in compliance with a recommendation of the Section in the last meeting at Pisa.—Dr. Filippi and Professor Balsamo gave some information relating to the composition of the Milanese territory.—The Cavaliere Alberto della Marmora communicated a short notice 'Of the Geological Structure of the Island of Sardinia, together with a Synoptical Table of the Formations that occurred in it.'—Professor Sismonda read a notice 'On the Fossile Echini of Piedmont.'

3. *Physical, Chemical, and Mathematical Section.*—Professor Maiocchi read a paper 'On the Methods of Determining the Conductibility of Liquids for Electricity.'—Dr. Gatta communicated some 'Meteorological Observations on the Climate of Ivrea.'—M. Bellingeri read a memoir 'On the Electricity of the Blood.' *Sub-Section of Chemistry.*—M. Righini gave an account of his researches into the composition of the oil of the *Lauro-ceraso*.—Professor Cenedella mentioned some curious facts concerning the action of dry chlorates on the deut-oxide of mercury.

4. *Agronomical Section.*—Various agricultural instruments were exhibited, of a new construction. The Cavaliere Vegerri read a project for compiling a complete popular account of agricultural sciences for Italy.

5. *Botanical Section.*—An excursion in the neighbourhood of Turin.

6. *Zoological Section.*—Signor Risso distributed to the Section several new species of *crustacea, ascidiæ, armelides, acalephi*, &c. from the Mediterranean, not noticed in zoological works.—Dr. De Filippi read a memoir 'On a New Natural Classification of Animals.'

September 28.

1. *Medical Section.*—The business of the day turned principally on various methods of curing croup, worms, and uterine complaints.

2. *Geological Section.*—Professor Sismonda exhibited to the Section a catalogue of the principal fossils found round Turin. He also exhibited fragments of an aerolite which fell at Cereseto on the 17th of last July.—Professor Pasini read a brief memoir 'On the Tertiary Euganean Formations.'

3. *Physical, Chemical, and Mathematical Section.*—Memoirs were read by M. Porro 'On certain Optical Combinations applicable to the Improvement of Optical Instruments;' by M. Michela, 'On some Hydrometric Instruments;' and by Professor Obici, 'On the Laws of Motion in Bodies impelled against each other.' *Sub-Section of Chemistry.*—Professor Peretti read a memoir 'On the Properties of Animal Carbon in removing Red Stains, or decomposing Red Vegetable Matter.' He alleged experiments to prove that the fermenting matter in grapes was a yellow substance found in all vegetable bodies.—Signor Luigi Quaglia read a paper 'On the Composition of the Greek Fire of the Lower and Middle Ages.'

4. *Agronomical Section.*—The Rev. Canon Bellani communicated a new method of drying and preparing mulberry-leaves for silkworms.—The Count Vitali explained an improved method of reclaiming marshy lands; and M. Novarese presented the models of some improved mills.

5. *Botanical Section.*—Dr. Bertola communicated a catalogue of Piedmontese plants.—Professor Moretti read a paper 'On the Absorption of Watery Particles by the Leaves of Plants.'

6. *Zoological Section.*—An excursion.

September 29.

1. *Medical Section.*—Professor Civinini mentioned the existence of a passage in the construction of the ear which was not commonly known, and which existed only in adults. Professor De Michelis shewed that he was already acquainted with such a passage or vessel.—A controversy on the merits of phrenology ensued, in which Doctors Riboli and Bonacossa advocated, and Professors Rusconi and Speranza opposed, its existence.—It was announced to the Section that Milan had been selected as the head-quarters of the Medical Commission for drawing up the medical statistics of Italy.

2. *Geological Section.*—A request was communicated from Professor Agassiz, that Italian naturalists and geologists would send him the details of every new discovery made of fossil fish.—M. Ball read a memoir 'On the Formation of Valleys.'—Professor Pasini mentioned some curious dislocations of the cretaceous and greensand formations in the tertiary district of the Vicentino.—The Marchese Pareto read a memoir 'On the Physical Configuration of Liguria.'

3. *Physical, Chemical, and Mathematical Section.*—Professor Mossotti read some observations 'On a Capillary Phenomenon,' adduced by Dr. Young against the theory of Laplace.—Dr. Chio read a memoir 'On Certain Converging Series, and other Mathematical Formulæ.'—Professor Laurie adduced some experiments of interest upon the electrification of mercury.—Captain Menabrea recommended the Section to act upon the idea of Professor Babbage, and to compile a collection of the Constants of Nature. *Sub-Section of Chemistry.*—Signor Demarchi read a memoir 'On the Causes of Spontaneous Combustion.'—The President communicated a paper 'On Lacteal Acid.'

4. *Agronomical Section.*—Several papers 'On the Culture of Silkworms and Mulberry-trees,' were read; and various instruments for the dairy, for silk-dressing, &c. were exhibited.

5. *Botanical Section.*—Excursion.

6. *Zoological Section.*—Dr. Nardo described a new species of gasteropodus, called by him *Canulus*, a native of the Adriatic. Several letters, and other minor papers, were also read and discussed.

September 30.

A grand final meeting of all the Scienziati was held in the Great Hall of the University; on which occasion the President delivered an eloquent address, in which he gave a summary account of the principal results of the Congress. He announced that the meeting for next year would be held at Florence on the 1st of September.—The King of Sardinia has conferred the order of the Nunziata on the President.

Answer to the last Sciarada :—Occhi-ali.

Academy of Sciences, October 13, 1840.

2. Sitting of October 5. *Date of the Great Pyramid.*—A letter was read from M. Thilorier, 'On the Interpretation of certain Hieroglyphics in the Chambers of the Great Pyramid of Memphis, discovered by Colonel Vyse in 1838.' The inscriptions in question contained the name of the King Schoufou, or Cheops of Herodotus; and it appeared that they stated that, under the reign of that monarch, the principal star of the constellation *Lyra* rose at noon on the day of the summer solstice. This could only have happened when the winter solstitial point was at 90° east of the present one; that is, in the year 4550 before the Christian era. M. Thilorier had been led to discover the sense of the inscriptions from an old Arab tradition, preserved by the historian Abou Zeid el Balkhy, who stated that there had been found on this pyramid an inscription to the effect that it had been constructed when the *Lyra* was in the sign of *Cancer*. M. Thilorier inferred that this passage meant that the rising of the *Lyra*, at the time of the construction of the pyramid, coincided with the solstitial point. The Arab historian farther said that this was twice 36,000 years before his day. Now, these years, according to the form of ancient chronology, observed M. Thilorier, must be taken as indicating revolutions of the moon in her orbit, in lunar months: and therefore if 27·03 days (the time of the lunar month) were multiplied by 72,000, the result would be 1,967,760 days, or 5387 solar years; which, according to the calculation of the Arab astronomer, had intervened between the date of his writing (225 of the Hegira) from the day when the *Lyra* rose at noon on the day of the summer solstice. This gave 4540 years before the Christian era, which coincided pretty nearly with the date in the inscription of the pyramid just discovered. Also, if a calculation were made, going back from 525 B.C., which was the date of the invasion of Cambyses, of the years of the twenty-two dynasties of Manetho, and the four reigns of the fourth dynasty, which preceded the reign of Mycerinus, and by adding to these the seventy-eight years which, according to Pliny, intervened between the death of Mycerinus and the construction of the pyramid, it would be found that a date of 4484 years was obtained, which was a third coincidence of no small value.

A letter was read from Mr. Fox Talbot, claiming priority of invention for M. Jordan as to the manner of registering meteorological observations by photogenic impressions. This new art had been applied by M. Jordan at least a year before the subject had been communicated to the Academy.

The Academy of Inscriptions and Belles Lettres has just given out the following subjects for prizes for 1841 :—A prize of 400f. for the best work on Numismatics, to be published since 1st of April, 1840. Three gold medals, 500f. each, for the best works on French Antiquities.

Professor Mickiewicz, the Polish poet, has accepted the chair of Slavonic languages and literature at the Collége de France; vacating, thereby, his chair of Latin literature at Lausanne.

A Central Historical Society for Switzerland has just been formed out of the delegates from the cantonal societies. It is to meet every two

years, and is to hold its first sitting next year at Berne. Professor Ott, of Zurich, is the secretary.

Professor Ollmar Frank, who held the chair of Persian and Sanscrit at Munich, and had been sent by the King of Bavaria to Vienna to purchase a collection of Indian antiquities, died in the latter capital not many days since. Dr. Luigi Brera, a scientific physician of great eminence at Venice, died there on the 4th of October, aged sixty-eight.

The Swedish Bishop Teguer, whose poems are well known to Scandinavian scholars, has just been attacked with insanity, and has been put into confinement.

Two shocks of earthquake were felt in the Abruzzo Citeriore, and at Sulmona, on the 19th September.

THE DRAMA.

Drury Lane.—On Monday, the *Concerts d'Hiver* made a most auspicious commencement; for the house was crowded to the roof, and the *promenade* part so excessively crammed that it was literally impossible to move about: this inconvenience, however, did not seem to put the audience out of temper, for they generally bore the squeezing and treading on each others' toes with great good-humour. The decorations are much more beautiful than they were in the summer season, and many changes have been made in order to accommodate both the performers and the public. The orchestra has, to all appearance, been considerably enlarged, and does not seem to be so closely packed as it was formerly, though it still contains an equal number of musicians. The music selected was of the same class as that which drew so well last season, viz. overtures, valses, and quadrilles; and was played in an equally effective manner. The band is conducted by the celebrated Musard, who proceeds in the most business-like manner with his duties: there is no foppery or flourish about him, and it would be very difficult to misunderstand the meaning of every movement of his *bâton*. The solo performers have also been increased in number, and several celebrated Continental names now grace the ample list of the Drury Lane band: among them we may mention M. Willent Bordogni, who makes most surprising music on the bassoon, and Messrs. Dantonet, Prospere, De Loffre, Pilet, Faivre, Müller (father and son), &c. Of last year's favourites we have Herr Kœnig, who is a more skilful player on the cornet-à-pistons than he was last season, and appeared to astonish even experienced musicians with his tremulous execution. We did not think the instrument capable of producing any thing like the soft yet thrilling notes which he apparently brought from it, without very great exertion. Messrs. Collinet and Frisch are likewise retained; and, altogether, we should say that Mr. Eliason has selected one of, if not the most perfect, band that ever performed in England.

Adelphi.—*Jack Sheppard*, with its original cast, has been revived, and is as popular as ever.

Olympic.—On Monday a farce, entitled *The Moving Statues*, met with well-merited applause at this agreeable theatre; it is one of the best little pieces that has been acted for some time. The characters were sustained by Messrs. Balls, Turnour, Baker, Roxby, and Mrs. Garrick, who all performed with much spirit. On Thursday a drama, called *Venus a Vestal*, was produced with similar success. Miss J. Mordaunt, who looked and sang charmingly, playing *Venus*; and Miss M. Glover, who was also very pretty, *Apollo*. A very beautiful duet was sung, in an effective though simple manner, by these ladies, and they were well supported by Mrs. H. Beverley and Mrs. Garrick, and Messrs. Horton, Brooks, and Turnour. The dresses and scenery are good and appropriate.

ORIGINAL POETRY.

THE HYMN OF THE COMET.

By James Macaulay, M.D.

I COME to revisit this star remote,
A guest for a time in its skies to abide;
Where my light will be hail'd by many a note,
Of the peasant's awe and the sage's pride;
When he boasts he can trace my times and my way,
Though in pathless error I seem to stray.

Men say that I bring with me wo and death,
That sickness and sorrow are in my train,
That Pestilence wakes with his poison'd breath,
And War shakes his bloody lance again:
When my beams, like some meteor-flag unfurl'd,
Shed their dire influence o'er the world.

Meet thought in the sinful breast to spring!
Meet wo for the guilty heart to fear!
But whence these augur'd ills could I bring?
For where in Creation's widest sphere—
Where else but on earth's polluted ground,
Is sin, is sorrow, is death, to be found?

When first they came from their Maker's hand,
All His works were in perfect beauty made,
And the spirits that peopled each starry land
In wisdom and virtue alike were array'd;
Earth alone of its pristine splendour is shorn,—
Man alone has a glory departed to mourn.

Yet I love to revisit this fated earth,
Though a curse on its fields and its people may rest,
For much of the beauty that beam'd o'er its birth
Still is left to adorn its verdant breast;
And to fallen man many pleasures flow,
That unchanging spirits can never know.

Though labour oppress with its galling power,
All the sweeter is rest when the toil is gone by;
And the sorrow that lasts for a passing hour
Gives intenser bliss to succeeding joy;
Death itself, while it bears from the scenes men love,
Gives an entrance to happier mansions above.

Oft as I pass by some planet fair,
A heavenly melody floats around,
Full well would I love to linger there,
So soft is the ravishment breathed in the sound:
But sweeter far than these sweetest strains
Are the songs that ascend from earth's lowly plains.

The glory of God is best sounded on earth,
Of His mightiest works 'tis the favour'd field;
By man are His praises best shewn forth,
For to him is the Deity fullest reveal'd:
His wisdom, His justice, all nature has known,
But His mercy has gladden'd this planet alone.

Could a spirit from earth 'midst some seraph choirs
Appear with his lofty Christian lays,
Mute, mute would remain each golden lyre,
And each voice be hush'd in deepest amaze:
Creation has many a glorious theme,
But the songs of Redemption far nobler would seem.

And bright though these happy spirits shine,
In Edens where Spring has unbroken reign'd,
Where sin has ne'er marr'd the forms divine
That in glory immortal have ever remain'd—
By a greater than these has this planet been trod,
The earth has been blessed by the footsteps of God.

Edinburgh, August 1840.

VARIETIES.

Public Spirit: Derby Arboretum.—"The Derby and Chesterfield Reporter" presents us with a very interesting account of the opening of the *Derby Arboretum*, the patriotic gift of an individual whose family has acquired vast wealth in that neighbourhood, and who, in this instance, has chosen to make a noble use of it, and set a bright example to others who are equally favoured by fortune. The individual to whom we allude is Mr. Joseph Strutt, who has conveyed to the town a fine piece of land, and employed Mr. Loudon to convert it into a beautiful and instructive arboretum, for the recreation and enjoyment of the people at large. In Mr. Loudon's skilful hands the ground has been speedily laid out with great taste, and filled with plants, as full of scientific information as they are delightful to the senses. On the 16th ult. a grand festival attended the public transfer of this property from Mr. Strutt to his fellow-citizens; and he had the pleasure to receive those demonstrations of respect and affection to which his generous deed so justly entitled him. It must have been a truly affecting scene, and one in which the dearest feelings of humanity were strongly elicited on all sides. The land consists of eleven acres; and we are informed the value of the donation altogether is little, if at all, under the magnificent sum of 25,000*l.* Mr. Loudon, much to his honour, lent his talents gratuitously to perfect so splendid a purpose; and report speaks loudly of the ability he has displayed in executing his work.

Sir C. Lemon, we observe from a Cornish Journal, has, in a different manner—founding schools, &c.,—been emulating this example in his native soil. The honourable baronet has devoted some 10,000*l.* to public institutions.

H. B.—Even during the holydays H. B. has not been idle, for we have a portfolio with five very clever Sketches, called "Vacation Amusements," and two more humorous Caricatures, from his popular pencil. Of the "Vacation Amusements." No. 1, is "Pheasant Shooting;" Lords Melbourne and Normanby about to shoot at the Duke and Duchess of Beaufort. No. 2 is "Swing, Swong;" Lord Howick and Mr. Charles Wood in a swing, which the latter does not seem to relish much. No. 3, "Cricket;" eight or ten eminent politicians engaged in this popular recreation, the Conservatives endeavouring to bowl out the Whigs, who have had a "long innings." No. 4, "Cultivating the Fine Arts. Etching, &c.; or, H.B.'s Ascendancy in Danger!" The Queen, Prince Albert, and Lord Melbourne, engaged at their easels, with Hayter looking at a portrait which the last has just finished; and who, in answer to the prince, says, "I'm endeavouring to make a study of John Bull, and think I am making a pretty good thing of it, although my friend Hayter says that I have drawn him out of all proportion, and given his face a most woful twist." Her Majesty's rejoinder is very pointed:—"John Bull is a *good subject* when *well treated*." No. 5. "Angling;" Lord John Russell fishing in Conservative waters, and complaining that he has not had even a nibble, while Lord Palmerston declares that he baits his hook in vain. The Duke of Wellington and Sir R. Peel are standing on the other side of the stream, and the former "Suspects those gentlemen may angle a long time in that quarter before they catch any fish." The Caricatures are, first, "Dives and Lazarus," portraits of the Archbishop of Canterbury, the Bishop of London, and the Rev. Sydney Smith; and secondly, "The newest edition of Mrs. Partington and her Mop," in which O'Connell appears as the encroaching sea, and Lord Fortescue as Mrs. Partington. The seven are respectively numbered from 651 to 657.

The French Language.—Since the Catalan refugees have been in France it has been remarked that the *patois*, or provincial language of Dauphiny, is much better understood by them than the current French of the day; and in the same way the domestics attached to the suite of Don Carlos, at Bourges, understand the idiom of the Bressois much better than ordinary French. There is an ample field for the philological scholar in the numerous ancient languages that still hold their ground in many parts of France,—all of them preferable, had they been cultivated, to the bastard tongue now in use. To mention only a few—there are the Provençal, the Basque, the Auvergnois, the Li-

mousin, the Breton, the Old Norman, and the Brabançon.—*Paris Letter.*

Novel Instruments.—At the last meeting of the London Medical Society, Mr. J. Harrison Curtis, one of the fellows, who has just returned from the Continent, exhibited two new instruments which he brought with him: the one is an *Auriscope*, which, by the aid of a lamp and condensing lens, enables the practitioner to examine the internal ear with great facility, and minutely to observe its condition. The other instrument is remarkably curious; it is the invention of Dr. Jager, the oculist of Vienna, and is called a *Phantom*: by its means every kind of operation on the eye may be performed, either on a dead subject or any animal, just as if they were in the living head.

The remains of the Rev. Dr. Carpenter, of Bristol, who was drowned on the night of April the 9th on his passage from Naples to Leghorn, have been recovered. The body was washed ashore between Naples and Civita Vecchia, forty miles S.S.E. of Rome, about the middle of June, and, according to the sanatory laws of the country, was consumed by fire. His watch, seals, and pocket-book, found on his person, sufficiently identified him. The Consul at Rome transmitted these articles to his agent in London, for Dr. Carpenter's representatives.—*Wilts Independent.*

LITERARY NOVELTIES.

LIST OF NEW BOOKS.

The Poetical Works of Thomas Moore, now first Collected by Himself (10 vols. f.cap 8vo.). Vol. I. 5*s.*—Ecclesiastical Chronology, by the Rev. J. E. Riddle, 8vo. 15*s.*—Human Physiology, by J. Elliotson, M.D. with numerous Woodcuts, 1 vol. 8vo. 2*l.* 2*s.*—Elements of Materia Medica, by John Pereira, F.R.S. Part II. 8vo. 24*s.*—Flora of Shropshire, by W. A. Leighton, 8vo. 24*s.*—Elements of Obstetric Medicine and Diseases of Children, by D. D. Davis, M.D. Part I. 8vo. 10*s.*—Gesenius' Hebrew Grammar, by J. T. Conant, medium 8vo. 9*s.*—The Dramatic Works of Wycherly, Congreve, Vanbrugh, and Farquhar, with Notices by Leigh Hunt, royal 8vo. 20*s.*—Fragments of Voyages and Travels, by Captain B. Hall, royal 8vo. 16*s.*—Voyages and Travels, by Captain Hall, Right Hon. H. Ellis, and T. Pringle, royal 8vo. 16*s.*—The Dowager; or, the Modern School for Scandal, by Mrs. Gore, 3 vols. post 8vo. 31*s.* 6*d.*—Marginal Readings and References, by the Rev. W. Burgh: No. I., St. Matthew, 12mo. 2*s.* 6*d.*—The Case Stated between the Church of Rome and the Church of England, by the Rev. C. Leslie, 12mo. 3*s.*—Tales of the Blest, a Poem, by R. Barker, First Series, 32mo. 2*s.*—Portraits of Public Characters, by the Author of "Random Recollections," 2 vols. post 8vo. 21*s.*—First Exercises in Light, Shade, and Colour, 16mo. 4*s.*—Master Humphrey's Clock, Vol. I. Imperial 8vo. 8*s.*—A Glossary of Civil Engineering, by S. C. Brees, 8vo. 18*s.*—Life and Adventures of Valentine Vox, 8vo. 21*s.*—Sermons on Practical Subjects, by the late Dr. Lant Carpenter, 8vo. 12*s.*—The Dacoit, and other Poems, by S. Sloper, 18mo. 2*s.* 6*d.*—A Key to Pleasant Exercises in Reading, &c. by J. Smith, 12mo. 2*s.* 6*d.*—Gesner's Death of Abel done into Blank Verse, by M. B. C. f.cap, 3*s.* 6*d.*—On the Discrimination and Appearances of Surgical Disease, by J. Howship, 8vo. 10*s.* 6*d.*—Moral Philosophy; or, the Duties of Man, by G. Combe, post 8vo. 7*s.* 6*d.*—Dissenters' Baptisms, and Church Burials, by the Rev. W. Blunt, 8vo. 4*s.*—Rev. E. Henderson's Translation of Isaiah, with a Commentary, 8vo. 16*s.*—Memoirs and Remains of the Rev. J. Griffin, by his Son, 8vo. 10*s.* 6*d.*—Anatomy of the Arteries of the Human Body, by R. Quain, Part I., royal folio, coloured, 12*s.*—Turner's Chemistry, Part III., No. II., 5*s.* 6*d.*—Warton's History of English Poetry, new edition, 3 vols. 8vo. 36*s.*—Sowing and Reaping; or, What will come of it? by Mary Howitt, 18mo. 2*s.* 6*d.*

METEOROLOGICAL JOURNAL, 1840.

October.	Thermometer.	Barometer.
Thursday .. 8	From 28·5 to 53	30·14 to 30·18
Friday 9	.... 34 .. 55	30·20 .. 30·21
Saturday .. 10	.... 31 .. 58	30·22 .. 30·24
Sunday 11	.... 37 .. 60	30·30 .. 30·37
Monday .. 12	.... 39 .. 58	30·47 .. 30·50
Tuesday .. 13	.... 32 .. 53	30·48 .. 30·41
Wednesday 14	.... 30 .. 55	30·30 .. 30·22

Wind, north-west and west on the 8th; north on the 9th and three following days; south-east and south-west on the 13th; and south-west on the 14th.

Except the morning of the 14th, remarkably clear.

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WESTMINSTER MEDICAL SOCIETY.—The First General Meeting of this Society will be held at the Society's Rooms, Exeter Hall, Strand, this Evening, October 17th. The Chair will be taken at Eight o'Clock precisely.

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